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EL PASO COUNTY (TEXAS) MEDICAL SOCIETY
THE MEDICAL AND SURGICAL ASSOCIATION
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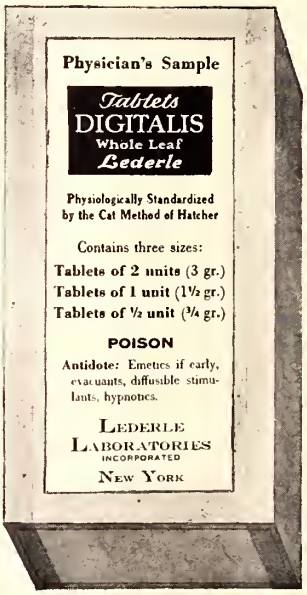

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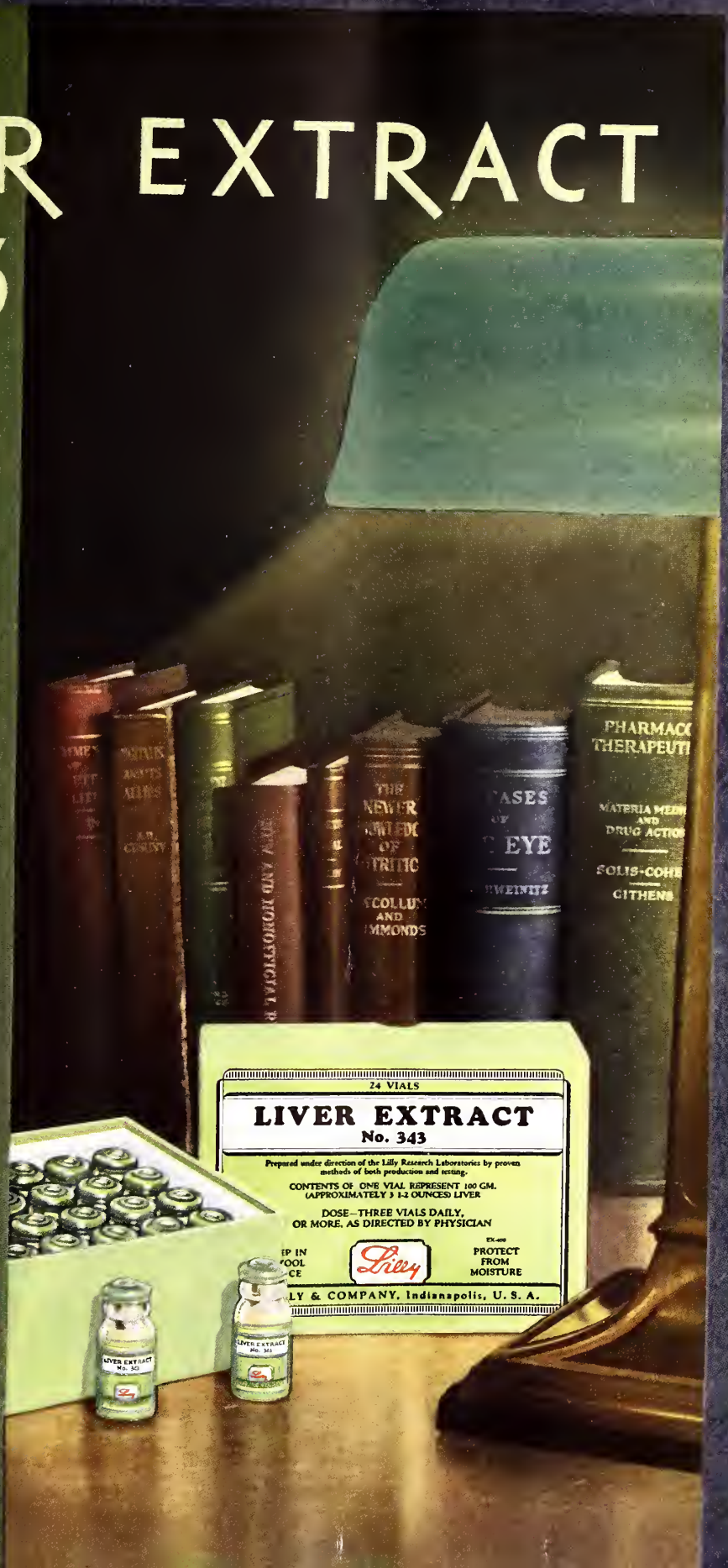
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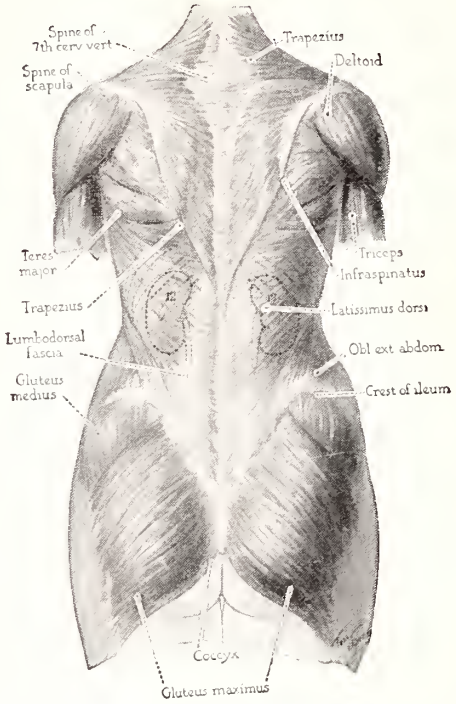

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THE MANAGEMENT OF LOBAR PNEUMONIA

ROY E. THOMAS, M. D.
Los Angeles, Calif.

(Read before the Annual Meeting of the Medical and Surgical Association of the Southwest, held in El Paso, Texas, Nov. 6-8, 1930.)

These observations are based on a series of 602 consecutive cases treated in the pneumonia ward of the Los Angeles General Hospital during the past four and one-half years. The service was shared by Dr. D. D. Comstock, professor of medicine of the College of Medical Evangelists. We were ably assisted by four junior attending physicians of the hospital staff. This series does not include cases of lobar pneumonia in children, as these are cared for on the pediatric service of the hospital.

The etiology, symptomatology, and diagnosis will not be discussed except to state that in all cases of this series the diagnosis was confirmed by x-ray films taken on the ward by a portable apparatus, or by autopsy. The word "management" in my title is used in preference to "treatment" because it is my belief that lobar pneumonia is a self-limited disease, the outcome of which, except possibly in a relatively small percentage of cases of types 1 and 2, cannot be altered by any specific treatment known at the present time. I do feel, however, that in a certain number of cases the outcome can be favorably influenced by careful nursing and symptomatic treament, which conserve the strength of the patient.

If the mortality of this series seems high to those of you who treat lobar pneumonia in private practice, please remember that these patients come largely from the very lowest stratum of society. Hoboes and Mexicans of the poorer class comprised a considerable portion of the group. There were many chronic alcoholics and others whose resistance to infection had been lowered by fatigue, exposure and lack of food. Often the patients were moribund on admission to the hospital and died within eighteen hours; yet our mortality rate for the entire group is 24.7 per cent, which I believe compares favorably with the figures from other large charity hospitals. In private practice a much smaller group of patients cared for according to the plan which I shall outline, showed a mortality rate of less than 10 per cent.

I shall discuss the management of lobar pneumonia under the following general headings: (1) General hygienic measures, (2) the treatment of symptoms, (3) specific therapy, and (4) the treatment of complications.

Under hygienic measures it should be needless to mention the desirability of a light, cool, well-ventilated room; an open porch is no longer considered necessary or even desirable for the pneumonia patient. The diet should consist of liquids and such soft foods as can be taken with the least effort on the part of the patient. The calories can be augmented by adding lactose to the fruit juices given. Fluids should be pushed to the patient's capacity in order to aid in the elimination of toxins.

Rest is of the greatest importance. All too often the patient is disturbed by visitors, too frequent chest examinations by the physician, or the ministrations of an overzealous nurse. Particularly tiring is the daily cathartic or enema, which the pneumonia patient, whether at home or in the hospital, seldom escapes. For the past year no patient on my service has been given either cathartic or enema during the critical stage of his illness. When this order was first given, our head nurse, a veteran of many battles with the pneumococcus, threw

up her hands in horror, but now, without a qualm, she allows the patients to go four or five days, or even a week, without an evacuation. When a patient gets well enough to worry about this apparent neglect he is given a mild cathartic or an enema. Since the adoption of this plan, I believe we see fewer patients with abdominal distention, probably the most dreaded symptom to occur in pneumonia.

Pain and cough often interfere with rest. These two symptoms are usually the only ones to require attention in the early days of the attack. Chest pain is best relieved by fixation. A binder pinned tightly about the thorax during expiration usually answers the purpose better than adhesive plaster strapping. Morphine may be needed for a day or two, seldom longer.

Cough can best be controlled by codeine in adequate doses, preferably administered hy hypodermic injection. The patient's stomach should be spared the various cough mixtures often prescribed.

Cyanosis may be an early and alarming symptom. It denotes anoxemia and should be relieved when possible. This can usually be accomplished by the administration of oxygen. The ideal method is by the oxygen chamber, which, however, is not usually available because of the expense entailed. The earlier cases of our series were given oxygen by means of a nasal catheter, strapped in position; more recently a small tent devised by Dr. A. E. Guedel has been used. This tent fits over the head and shoulders of the patient and is provided with a glass window. By a special valve attached to a large tank of commercial oxygen, the gas can be administered almost constantly at a cost of about seven dollars for twenty-four hours. Occasionally patients complain that the air in the tent becomes uncomfortably warm. This objection can be eliminated in most cases by increasing the oxygen flow.

Meteorism, as previously stated, is a symptom of the gravest import. It probably means splanchnic paralysis resulting from toxemia and may be compared to the alarming paralytic ileus which occasionally follows abdominal operations. In this condition the abdomen becomes drum-like; the diaphragm is pushed upward, thus embarrassing further the already labored respiration. The only therapeutic measure which in our experience has seemed to be of value in this condition, is the free administration of surgical pituitrin in doses of ½ to 1 c.c.

Vasmotor paralysis is probably the usueal cause of death in lobar pneumonia. The signs are falling blood pressure, moist cool skin, livid color and rapid, irregular pulse. Except for the dyspnea usually present, the appearance of the patient is much like that of one in profound surgical shock. It is the custom in many hospitals to use digitalis early in the course of the disease in the hope of preventing this circulatory failure. In an effort to determine the value of this procedure, our ward was divided into two services, to which cases were admitted alternately. On one service all cases of lobar pneumonia were rapidly digitalized as soon as the diagnosis was made. On the other service no patient recevied digitalis unless there were indications of previous myocardial failure, or auricular fibrillation occurred. In the first series, digitalization was accomplished by giving to a patient of average weight 6 grains of the powdered leaf every six hours for three doses, then 1½ grains twice a day until discontinued. In only two cases was there evidence of poisoning by the drug. In all, 239 cases received digitalis; of these, 81, or 33.4 per cent, died. On the other service there were 363 cases, none of which were digitalized; of these, 68, or 18.7 per cent, died. Recently Niles and Wyckoff[1] have published the results of a more complete study of the same nature on 825 cases observed at Bellevue Hospital. In this series the mortality rate was 7.7 per cent higher in the digitalized group. These results have convinced us that digitalis should not be administered to pneumonia patients except in those cases in which some definite indication, such as auricular fibrillation or preexisting myocardial failure, is known to be present. Furthermore, since the publication of Niles' report we have concluded that we are not justified in continuing this investigation.

The drugs upon which we rely for stimulation are caffein and ephedrin. Glucose intravenously, and even blood transfusion, may be of value in some cases.

Since 1897, when Washburn first immunized a horse and used the serum in the treatment of pneumonia in man, there have been numerous reports in the medical literature on the efficacy of specific treatment. To be of benefit, the serum must be given early and in large amounts. Only those cases caused by the pneumococcus types 1 and 2, are benefited. These comprise about fifty per cent of all cases. Cecil[2], Cole[3], Park[4] and Finland[5] have each reported a large series of adequately controlled serum-treated cases. The largest series, reported by Cecil from the Bellevue Hospital, comprised 885 cases. The mortality in the untreated cases was 39.2 per cent; in the serum-treated cases, 30 per cent, or more than 5 per cent higher than in our 602 cases treated without

serum. About two years ago we administered Felton's concentrated serum for types 1 and 2, to a group of seventeen patients. This group was "hand-picked," so to speak, being young or middle-aged adults who on admission had not been ill more than forty-eight hours. After the usual precautions the serum was given at once and continued only if typing proved the case to be suitable. Of the first twelve cases treated, ten recovered and we became quite enthusiastic. However, four of the next five cases died, giving a mortality for the series which compared unfavorably with our general average. The cost of Felton's serum is so great that the hospital authorities dicouraged its further trial. Following this experience, Mulford's polyvalent vaccine was tried for a time with no better success. Although as yet not entirely convinced of its value, I would use serum in an early case proved by typing to belong to group 1 or 2, provided there were no history of asthma or other allergic disease to a surgical service. When fluid in case to a surgical service. When fluid in sensitization.

Of the serious complications of lobar pneumonia, empyema is, of course, the most frequent. We try to make the diagnosis early, but we are in no hurry to transfer the case to a surbgical service. When fluid in the pleural cavity is suspected, an x-ray film is ordered. If this confirms our suspicions, the aspirating needle is used to determine the character of the fluid and to withdraw a sufficient amount to relieve pressure symptoms, if these are present. Nothing more is done until we are quite sure that the acute pneumonic process in the lung has subsided. Then, and only then, is the case turned over to the surgeon for closed drainage or rib resection. Many a life has been lost by hasty surgical interference in empyema. Occasionally, repeated aspiration of the pus results in cure. Antiseptics such as genian violet have proved of doubtful value in the infected pleural cavity.

Abscess of the lung was formerly thought to occur not infrequently following pneumonia. It is probable, however, that in the majority of instances these cases were lung abscess from the start and due to some agent other than the pneumococcus. I do not recall a case of abscess in which blood culture showed the pneumococcus at any stage of the illness. Regardless of its etiology, acute abscess of the lung should be treated conservatively at first. Anything more radical then bronchoscopic drainage should be avoided until the case "cools of." Probably half of these cases recover without surgery.

Pneumococcus meningitis is a comparatively rare complication. We have treated two cases by repeated spinal puncture, drainage, and injection of ethylhydrocupreine; both died. Recoveries have been reported following spinal drainage with the injection of serum.

The idea prevails, at least among the laity, that pneumonia is less frequent and less severe in communities like Southern California, which enjoy a climate comparatively free from sudden changes and severe cold. It may be true that the incidence is somewhat less in this climate, but I am convinced that mild climate does not mean a mild disease. Pneumonia is apparently as severe in our Southwest as in New England.

To summarize: We believe that lobar pneumonia is a self-limited disease, the duration of which cannot be modified by any means known at present, with the possible exception of a small percentage of cases (types 1 and 2) which may be benefited by the early and frequent use of specific serum. In our experience digitalis has been worse than useless. Codeine, caffein, ephedrin and pituitrin are the only drugs which we have found to be of apparent value. Oxygen relieves cyanosis and restlessness; it should be used early and freely. The routine use of enemas and cathartics is to be condemned. Attention to ventilation, diet and rest are measures which may turn the tide in favor of our patient, and the most important of these is rest.

REFERENCES

1. Niles & Wyckoff: Am. J. Med. Sciences, Sept. 1930.

2. Cecil, R. L.: N. Y. State J. of Med., Feb. 15, 1930.

3. Cole, Rufus: J. A. M. A., Sept. 7, 1929.

4. Park, Bullowa & Rosenbluth: J. A. M. A., Nov. 17, 1928.

5. Finland, Maxwell: New England J. of Med., June 26, 1930.

Sodium 2-Oxo-5-Iodo-Pyridine-N-Acetate (Introduced as Uroselectan).—The Council on Pharmacy and Chemistry publishes a preliminary report on sodium-5-iodo-2-pyridon-N-acetate) sodium 2-oxo-5–iodo-pyridine-N-acetate (also designated as a new substance for use in the radiographic visualization of the urinary tract which was introduced under the name Uroselectan. The Council reports that the product is a definite chemical substance which promises to be an advance in the radiographic visualization of the urinary tract, though its indications, advantages and limitations are at the present time not fully established. The Council considers the product suitable for experimental use by those who are versed in the technique of urologic examinations. It publishes a concise and carefully considered statement of the introduction of the drug and the evidence for its use, prepared for the Council by Drs. Braasch and Bumpus. (Jour. A.M.A., November 8, 1930, p. 1425.)

THE DIAGNOSTIC CRITERIA OF HEART DISEASE

GEORGE HERRMANN, M. D.
Department of Medicine, Tulane University of Louisiana. New Orleans.

(Read before the Annual Meeting of the Medical and Surgical Association of the Southwest, at El Paso, November 7, 1930.)

Failure is the gloomy specter that haunts the future life scenes of the individual with heart disease. Whatever the heart lesion, providing it is organic, the ultimate outcome, though often postponed for years by careful therapy, is usually incapacitating pain or swelling. Death comes either suddenly with a breast pang or less insidiously with increasing dyspnea or orthopnea, congestion, cyanosis and edema. The exact mechanisms by which these states are brought about are not yet clearly established. This field of study offers much for investigation. Certain clinical facts are known and guide us in our attempts to forestall the vicious circle of so-called decompensation. Intercurrent infection, undue strain, frequently repeated insults, psychic emotional upsets, mechanical embarrassments, adverse physical and climatic conditions all help to precipitate the break in compensation. There is no recognizable change in the pathological anatomy suddenly present in the heart, but the precipitous disturbances in the cardio-respiratory functions are often extreme. The interesting facts and theories concerning these mechanisms warrant more detailed discussion which cannot be gone into at this time. The diagnosis of heart disease in the presence of failure is relatively simple, it is the recognition early in the incipiency that is essential.

The ultimate fate of the patient with organic heart disease as popularly conceived is sufficient to strike fear into any one afflicted. The diagnosis of heart disease in the minds of many is the equivalent of a death sentence. This fate seems inevitable, inexorable, swift, precipitous, immediate, and hideous to some. The verdict should therefore be reserved and not pronounced until there is not a shadow of a doubt, only after searching study, seasoned deliberation, and even then never abruptly or unceremoniously, but with tact and discretion after careful consideration of the patient's psychological reactions. In fact, it is the part of wisdom to avoid the discussion of the findings and to refrain from the diagnosis of cardiac abnormalities in any but those of impassive indifference. Carelessly used, loosely descriptive expressions, as "valve leakage," "heart damage," "dropsy" and "angina pectoris," thoughtlessly meted out are most harmful. The temperamental, worrisome type of individual is apt to conjure up for himself a terrible imaginary or phantom symptom complex and the phychic insults of such a brain storm of the self-sentenced individual are more detrimental and demoralizing than are the actual concurrent physical sufferings.

To avoid such distressing incidences and unnecessary anguish it is not only desirable but necessary to establish some more or less dogmatic criteria. The physician must have a clear conception of what constitutes heart disease and what signs he is going to require as evidence thereof. Certain physical abnormalities, such as serious mechanism disturbances, significant thrills and murmurs, changed and adventitious heart sounds, enlargement, hypertension and arteriosclerosis are of definite diagnostic and prognostic significance.

The usual abnormal signs we must admit are only evidences of conduction, valvular, aortic and vascular lesions, but from the type and extent of such damage we can fairly accurately deduce the degree and the type of pathology present in the heart muscle and also often by inferences determine the etiological agent. This is especially true when the cardiac affection has been, as it so often is, the result of syphilitic, rheumatic, or streptococcic infection. These diseases are notorious for the fact that when they have produced cardiac valvular or aortic lesions they have also concurrently damaged the heart muscle. This myocardial damage may remain latent for many years but eventually symptoms and signs referable to it will present themselves in the inevitably developing clinical picture.

The added burden of the defective valvular or aortic mechanism must be recognized as a contributing factor to the ultimate fate of the case. Physical strains, especially if repeated, are poorly borne, add insult to injury and serve to hasten the onset of failure with its vicious circle of distressing symptoms and signs. Infections, anemia, chemical and physical changes in the blood and the vascular changes of advancing years are much more poorly tolerated and the cardiac cripple must be guarded against them and the advance of the same as much as it is possible to do so. This is one of the chief functions of the attending physician who is managing the case.

The present-day physician must, or should, have a clear conception of what constitutes heart disease, the daignostic signs of the condition the rational scientific in-

terpretation of the various findings, and the prognostic significance of these physical abnormalities. We can with a reasonable degree of accuracy determine and differentiate definitely the grave from the insignificant lesions; we know the possible complications, the usual progress of the various lesions, and the limitations to be placed upon the patient with a symptomatic organic heart disease. The conditions are rationally and dogmatically defined, even though the direct specific evidences of myocardial damage, before the advent of symptoms of insufficiency, are rather obscure and the functional tests still relatively crude and inaccurate. The exact histological picture that the heart muscle would present is indeed quite indeterminable.

Nevertheless, it should no longer be that "Truly fortunate are they who keep aloof from the stethoscope of the auscultator," as Austin Flint wrote in 1862. His extensive and profitable experiences in the Charity Hospital at New Orleans and his teachings had not yet been broadcast and as completely and widely appreciated as they are at present. The intervening years with the contributions of Mackenzie, Lewis, Wenckebach, Christian and many others, have given us information such that after the study of a case we can, with careful phychologic approach, usually accurately and reassuringly inform a patient of his condition without unduly alarming him. We can manage his case and direct his mode of living so as to add years of productivity and comfort and often even carry him through the average span of years of human lifetime.

The simple bedside methods, in the hands of the average informed physician, will yield the necessary critical clinical information upon which an accurate diagnosis and prognosis can be made, in the great majority of cases. The common laboratory procedures must be resorted to for confirmatory evidence. The history and the physical examination, but especially the latter, may be relied upon for the differentiae and omens of functional or organic heart disease cases.

THE CLINICAL HISTORY

The story that the patient with heart disease offers may, unfortunately often, be related verbatim by one with a cardiac neurosis, neurocirculatory asthenia or the effort syndrome. This subjective evidence must therefore always be of secondary or corroborative diagnostic value. Symptoms appear only when the heart muscle begins to lag in the performing of its job. That is, only when there is a failure or myocardial insufficiency of some degree. The characteristic complaints of pain, shortness of breath and swelling of the legs can be produced by other conditions, but, in the presence of heart disease, they indicate the extent of cardiac reserve. Pain in the substernal area and down the arm or under the right costal border, from the stretching of the Glissonian capsule of the engorged liver, dyspnea or orthopner, cyanosis or edema, are the symptoms and signs of ischemia, fatigue or exhaustion of the heart muscle.

The present illness in a reliable history is, in general, a fairly good index of the functional state of the circulation. The complaint of pain, especially when graphically described as the classical radiating breast pang of Heberden, is most significant, especially in one of stolid temperament in the middle decades of life. Under such circumstances the typical story is usually sufficient for a diagnosis of heart disease with anginal failure, even in the absence of physical findings. This, however, is the only exception to the rules to be elaborated herein.

The past history often reveals important information as to the original etiological factors and the symptom-precipitating circumstances. Information of this sort is useful in the formation of a prognosis and in the subsequent management of a case. A denial of venereal infection, however, must not deter one from making a diagnosis of syphilis of the aorta in a middle-aged man with a free aortic regurgitation or the signs of an aortitis and dilatation, in the presence, or even the absence, of other clinical or laborator data, when the less common other causes are eliminated. Likewise, a negative history of the rheumatic infection, as acute multiple arthritis, chorea, acute tonsillitis or growing pains, does not discount the diagnosis of rheumatic heart disease in the presence of a definite mitral stenosis. Exopthalmic goiter and other diseases of the thyroid, or other serious infections or chronic diseases, are of significance as contributory affections. The limits of this are defined by the history as to whether the patient is able to carry on his usual activities (Class I), or is unable to carry on his ordinary physical activity (Class II), in which he is either slightly limited (a) or greatly limited (b) or is unable to do anything whatsoever and must remain in bed or in a chair (Class III). (American Heart Association Classification of Myocardial Insufficiency). All this information, valuable as it is, remains subjective, and practically no unequivocal data can be derived from this

source. For reliable criteria for the true indications of heart disease, we must, therefore, turn to the other source, namely, the objective findings.

THE PHYSICAL EXAMINATION

Certain physical signs constitute the reliable diagnostic criteria of organic heart disease with all its grave potentialities of failure.

These physical signs, if they are to be considered absolute signs of heart disease, must be such that each single one in itself indicates the presence of actual or potential myocardial changes that sooner or later lead to congestive or the anginal type of heart failure. These signs must also be such and so inclusive that the absence of each and every one of them is proof that the patient is not suffering from heart disease. Any such index of signs must of necessity be rather dogmatic and may at times lead to slight error. On the whole, however, it is more satisfactory to be somewhat dogmatic than to be constantly vacillating and unsure of one's position. The diagnostic criteria of heart disease, that have been more or less generally accepted in cardiological circles, will be presented and discussed.

I. SERIOUS CARDIAC MECHANISM DISTURBANCES THAT INDICATE HEART DISEASE.

Auricular fibrillation, flutter, heart block and alternation, when definitely or permanently established, are produced only in damaged hearts. These significant disturbances of cardiac action may be elicited by an examination of the radial or carotid pulse and the apex beat with vagus, exercise or amylnitrite. The complete arrhythmia persisting and increasing as the rate rises to over 120 or 140; the rapid regular rhythm sharply but temporarily influenced by vagus pressure; the slowed regular rhythm increased by a multiple or uninfluenced by exercise; and the regularly recurring weak beats unaccompanied by pauses, are usually sufficient eveidence for a diagnosis of the disorders. The persistent presence of any one of the disturbances is most significant in that each is always preceded by, initiated by and accompanied by serious myocardial damage. Clinical or bedside means are usually sufficient to establish fairly accurately the diagnosis, with the possible exception of an occasional instance of atypical flutter and heart block. Electrocardiographic tracings will determine the exact nature of rhythm disturbances. Blood pressure studies or tracings, noting the alternate higher and lower levels of the systolic arterial blood pressure, establish definitely a record and confirm the suspicion of an ominous pulsus alternans, which is the sign of a gravely weakened myocardium.

II. SIGNS OF VARIOUS CHRONIC CARDIAC VALVULAR LESIONS THAT EVIDENCE HEART DISEASE.

Diastolic, mitral and aortic thrills and murmurs. Thrills are the palpable counterpart of loud murmurs. The latter are gravely significant only when diastolic in time, except for the occasional rare congenital systolic ones. A slow diastolic vibration is felt in the presence of an audible, rumbling, apical diastolic murmur, the characteristic physical findnigs in a patient with a well-developed mitral stenosis. Mitral stenosis is a valve lesion which spells previous rheumatic valvulitis and, consequently, rheumatic heart disease, with or without the history of previous infection. In rheumatic fever the myocardium is always directly affected to a greater or less extent. Focal and disseminated scars found in the auricular and ventricular muscle are proofs of the widespread involvement of these structures. With the added embarrassment of mechanical defects in the mitral or aortic valve, the heart is bound to give way eventually under the added strain.

The high-pitched basal diastolic murmur transmitted from the second right to the third left intercostal space and on toward the apex or axilla, so characteristic of a very free aortic regurgitation, signifies old rheumatic heart dsiease in the young individual, or syphilitic heart disease if the patient is middle-aged, or arteriosclerotic disease in senility. In vascular syphilis the root of the aorta is usually affected and the process in the wall frequently encroaches upon the orifices of the coronary arteries. Narrowing of these cuts down the blood supply to the heart, which is further and probably primarily impaired by the low diastolic blood pressure. Thus the coronary blood flow is reduced to a very low ebb. Besides this grave nutritional disturbance, the unusual infiltrated and fibroid lesions complete the evidence of direct and indirect involvement of the myocardium by the syphilitic virus. Syphilitic vascular disease without heart disease is inconceivable.

III. ABNORMAL AREAS OF AORTIC AND CARDIAC, DULLNESS; AORTITIS, ANEURYSM, HYPERTROPHY OR DILATATION OF THE HEART.

Enlargements of the great vessels, or of the heart itself, invariably interfere with the essential blood supply of the myocardium, and the encroachment sooner or later leads to insufficiency and congestive failure. The signs of aortitis, the increased retro-

manubrial dullness, must be accompanied by a pathologic ringing, metallic or tambourlike aortic second sound in the presence of a normal blood pressure. Further dilatation to the point of production of aneurysm gives rise to increasing dullness, abnormal pulsations, diastolic shocks, or rebounds, tracheal tugging, unequal brachial blood pressures and radial pulses and transmitted heart sounds. Besides these, we find an extensive vascular damage, and all taken together constitute the manifestations of vascular syphilis, especially when accompanied by sharply accentuated reverberating, liquid aortic second sounds in the presence of a normal blood pressure. Syphilitic aortitis, aneurysm, especially the latter, do not produce as profound changes in the heart as are present in aortic regurgitation. Nevertheless, the changes are significant. Traumatic, arterio-venous aneurysm, unrepaired for many years, results in myocardial damage in the hypertrophied heart. Fluoroscopic examination and teleoroentgenograms, especially with lateral and left and right oblique views, are generally employed to corroborate the clinical diagnosis.

Clinically recognizable increase in the size of the heart means a pathological heart muscle which sooner or later will fail, principally because its blood supply cannot keep pace.

The increased area of cardiac dullness is likewise not sufficient evidence, in itself, of cardiac enlargement. It may be produced by a pericardial effusion, but under such circumstances it is of about equal significance.

Visible displacement to the left of the midclavicular line of the cardiac apex is generally conceived to be the most definite, almost infallible clinical or bedside sign of cardiac enlargement, in the absence of dullness in the opposite chest. For the most part, the circumscribed apex impulse is the best criterion of the size of the heart on the left border of dullness, which sometimes is difficult to make out. This, for the most part, corresponds to the left border of the normal or moderately enlarged heart, and in very large hearts does not quite indicate the full extent of the left border of the heart to the left. If this extension is more than 15 cm. beyond the midsternal line, if definitely outside the midclavicular line, if there is no gross evidence of any massive collapse of the left, or air or fluid in the right, pleural cavity, cardiac enlargement is present. Dilatation and hypertrophy of the heart are incompatible with continued normal function and integrity of the myocardium, because, sooner or later, with aging if from no other reason, the circulation of the heart itself is embarrassed. There can be added, to substantiate the signs, the graphic evidence of fluoroscopic findings, or the diagrams or teleoroentgenograms, which yield absolutely conclusive evidence of an exact measurement of the shadow of the enlarged heart. The evidences of etiological factors producing the cardiac enlargement may be present. These usually are either the valvular lesions, the sclerosis and tortuosity of all peripheral vessels, increased blood pressure, evidences of renal damage. Hyperthyroidism, or hyperthyroidism, may be revealed, further substantiating the diagnosis of heart disease. Chronic adhesive pericarditis usually escapes detection.

The increased area of cardiac dullness, abnormal areas of dullness in the regions of the great vessels, are usually corroborative of previously elicited signs, such as visible and abnormal pulsations of the cardiac impulse, substantiating the diagnosis of aneurysm or myocardial disease. Pericardial adhesions anchoring the heart to the chest walls produce physical embarrassment to cardiac action, increasing as time goes on and, at the same time, constricting, and by pressure decreasing, the circulation and predisposing to circulatory embarrassment, damage, and eventually failure.

IV. CHRONIC, TOXIC, VASCULAR, METABOLIC AND RENAL DISTURBANCES INVARIABLY DAMAGE THE HEART.

Chronic hypertension, chronic nephritis and chronic hyperthyroidism are recognized etiological factors in the production of advanced heart disease, and therefore their presence alone over a period of time would be taken as indirect evidence of myocardial damage. One cannot be absolutely certain just how this damage is brought about, but evidently there is quite a strain in the burden of continued high blood pressure. There is a characteristic narrowing of the arterioles all over the body, producing nutritional changes in the heart muscle as well as in other muscle elsewhere, with ultimately the concomitant arterial changes. The circulation of retained metabolic by-products, incomplete and abnormal endocrine, especially thyroid secretions, inevitably produces direct chemical changes on the heart muscle cells. Shifts in the acid-base, electrolyte, blood protein, albumin and globulin levels, and osmotic changes, are still theoretical consideration and explanaton only. The extra burden of increased circulatory efficiency, against greater or less odds, results in heart muscle changes recognized as pathologic cardiac hypertrophy.

Cardiac damage may not always be see-

ondary but may be initiated by the same factor or infection which produces the recognized hypertension, nephritis or hyperthyroidism, as presenting symptoms.

A chronic hypertension, or hyperpiesia, is one which persistently remains 30 or more millimeters of mercury above the accepted average normal for the patient's age and sex.* In the female a temporary postmenopausal increase in blood pressure is not so ominous. Some accept anything over 160 millimeters of mercury systolic and 90 millimeters diastolic as hypertension; others put the critical level as 180 systolic and 100 diastolic.

V. GENERALIZED VASCULAR CHANGES OR LOCALIZED CORONARY THROMBOSIS MEANS HEART DISEASE.

Widespread arteriosclerosis demonstrable only peripherally, and the vascular enlargement and elongation effecting an increased tortuosity of the vessels, may be considered as evidence of a generalized process. The aortic root and, consequently, the orifices of the coronary arteries, are practically never spared in widespread arteriosclerosis. On the other hand it is common to have these central arteries involved with relatively little definite change in the peripheral ones. The inevitable nutritional disturbances impair the structure, as well as the function, of the myocardium. The changed coronaries can no longer supply the threefold volume demanded on exertion and, consequently, there results an ischemia cardis. There may often be, with the cardiothoracic distress, spasms or coronary obstructions, but no unequivocal signs evident on ordinary physical examination.

Heart disease is always present in the presence of such vascular diseases. These may be lacking and subjective evidence alone, an excruciating substernal pain radiating into the arm, accompanied by blood pressure changes and vasomotor disturbances, must occasionally be accepted.

The story of one acute attack of severe persisting precordial pain—followed by dyspnea, frothy blood-tinged pulmonary-edema fluid, cyanosis, distant heart sounds, a friction rub, leukocytosis and fever—indicates that an infarction of the myocardium has taken place as the result of localized, often minimal, coronary changes. The coronary thrombosis usually so damages the heart that anginal or congestive failure appears sooner or later.

COMMENTS

It is, of course, sufficient for the diagnosis of heart disease to find one of these reliable signs as an index. However, the rule is that not only the one presenting in a given case need be depended upon. Usually there are several corroborative findings. When a patient, however, does not present any one of these ten physical indices, no matter what the symptomatology may be, one can feel quite secure in stating that the patient is not suffering from heart disease. In the absence of each and every one of the cardinal signs or predisposing state, the individual cardiac symptoms, regardless of their intensity, must be considered as a part of functional rather than organic heart disease. The prognosis accordingly would be much better, and any claim for disability could not be upheld. Rare electrocardiographic abnormalities, evidence of prolonged auriculoventricular conduction time, high-grade intraventricular defective conduction, may in themselves be indicative of grave myocardial damage, but usually these cases present one, and often more, of the clinical bedside findings. Clinical findings and conclusions are substantiated and corroborated by this graphic means.

In summary, then, the conception of what is meant by the term "heart disease" and the basis for the diagnosis of an organic circulatory disturbance is highly desirable from the patient's standpoint as well as from the physician's.

A diagnosis of "heart disease" should be made only in those who present the reliable criteria or physical signs which can be taken to indicate that the heart muscle itself has suffered definite structural impairment such that its reserve is diminished. The damaging effects of infection, allergy, anoxemia, exhaustion, strain, under nutrition, or developmental disturbances. Mechanical embarrassments may actively contribute to the eventual picture but are always of secondary moment. The damaged heart muscle is such that the signs and symptoms of myocardial insufficiency, incompetency, namely, congestive or anginal heart failure, will appear in the presence of such precipitating factors as undue exertion, intercurrent toxemia, or the inevitable vascular and circulatory changes and complications of advancing hypertrophy and age and the concomitant embarrassment of a coronary circulation.

The signs which indicate this are arrang-

*The generally accepted normal systolic blood pressure level is calculated on the basis of 120 at 20 years with 1 millimeter rise for every two years above this age, thus putting the normal level at 135 millimeters of mercury at 50 years. The significance of decidedly subnormal levels in advancing years has not been absolutely established.

ed in groups as follows: First, Auricular fibrillation, flutter, pulsus alternans and heart block. Second, Diastolic, mitral and aortic thrills and murmurs. Third, Increased dullness of aortic dilatation, aneurysm and cardiac enlargement. Fourth, toxic, hyperthyroidism, metabolic or renal disturbances, chronic hypertension and nephritis. Fifth, Generalized arteriosclerosis.

SODIUM AMYTAL FOR THE PREANESTHETIC PREPARATION OF SURGICAL CASES

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IDA HEISSIG, M.D.
Los Angeles, Calif.

(Read before the Annual Meeting of the Medical and Surgical Association of the Southwest, held in El Paso, Texas, Nov. 6-8, 1930).

The derivatives of barbituric acid have been used for many years as hypnotics and sometimes as anesthetics. In order to clarify the relationship between the descriptive clincal term and the synonymous trade name of the barbituric acid derivatives which have assumed some significance in medicine, Lundy[1] has prepared the following list.

Iso-Amylethyl Barbituric Acid—Amytal.
Isopropylethyl Barbituric Acid—Ipral.
Phenylethyl Barbituric Acid—Luminal.
Cyclohexenylethyl Barbituric Acid—Phanodorn.
Ethylbutyl Barbituric Acid—Neonal.
Phenylmethyl Barbituric Acid—Rutonal.
Diethyl Barbituric Acid—Veronal or Barbital or Malonal.
Allylisopropyl Barbituric Acid—Allonal or Numal.
Diallyl Barbituric Acid—Dial.
Isobutylallyl Barbituric Acid—Sandoptal.
Diethyl Barbituric Acid and
Allylisopropyl Barbituric Acid—Veronal and Allonal, called Somnifene.
B-Brompropenylisopropyl Barbituric Acid—Noctal.
B-Brompropenylisobutyl Barbituric Acid—Pernocton

The sodium salts of these derivatives of barbituric acid are preferable to the acid itself for many reasons, chiefly because of the solubility.

Sodium iso-amyl-ethyl barbituric acid (sodium amytal) is furnished by the Eli Lilly Company in ampules containing 16 grains. This is dissolved in 10 c.c. of sterile distilled water making a 10 per cent solution. This solution shows a hydrogen ion concentration of between 9.5 and 9.8, which gives a maximum anesthetic effect with a minimum degree of toxicity. This solution can be given intravenously, orally, subcutaneously or intraspinally. Our experience with sodium amytal has been entirely with the intravenous route. The drug has been used only as a preanesthetic hypnotic and not as an anesthetic.

This report is in no way an attempt to compare sodium amytal with other barbituric acid derivatives but only to record our experience with a method which we consider a great advance in the preanesthetic preparation of surgical patients. There has been no fatality in this series traceable to the sodium amytal.

This report comprises 200 cases. One hundred and twenty-five cases were private patients and seventy-five cases were from our clinic at the Los Angeles General Hospital. The sodium amytal at the Los Angeles General Hospital was given under the supervision of Dr. Ida Heissig, Chief of the Anesthetic Staff.

Table 1 shows the type of operation in which sodium amytal was used.

TABLE I.

Operation		No. of Cases
Thyroidectomy		101
Cholecystectomy		20
Cholecystectomy and Choledocholithotomy		4
Gastro-enterostomy		15
Gastrectomy for Carcinoma		7
Iliocolostomy		2
Carcinoma of the Cecum	1	
Carcinoma of Ascending Colon	1	
Colectomy		3
Descending Colon for Carcinoma	2	
Carcinoma of Sigmoid	1	
Removal of Rectum for Carcinoma		2
Carcinoma of Liver, Exploratory		3
Appendectomy		14
Hernioplasties		10
Inguinal	6	
Umbilical	2	
Ventral	2	
Closure of Cecal Fistula		1
Mastectomy		6
Salpingectomy		2
Hysterectomy		7
Oophorectomy, for Cyst		1
Splenectomy, for Splenic Anemia		1
Removal of Submaxillary gland for Carcinoma.		1
Total		200

PREANESTHETIC HYPNOSIS

The chief object of using any preanesthetic hypnotic is to relieve the fear most patients have of an operation and of taking an anesthetic. Most patients worry more about the anesthetic than they do about the operation itself. Sodium amytal relieves the patient of this preoperative fear, diminishes the amount of anesthetic used, decreases that postoperative nausea and vomiting and allows the patient several hours of postoperative sleep. Patients who have had two operations, one without the sodium amytal and the other with sodium amytal, are unanimous in their praises of this new method.

Dosage and administration according to Zerfas[2]:

When sodium amytal was first used to produce anesthesia, doses as large as 30 grains were given intravenously, and even

then at times ether had to be used. The long postoperative narcosis of twelve to twenty-four hours was an objectionable feature, being responsible for many of the postoperative lung complications, such as bronchopneumonia and pulmonary edema.

In our series no attempt was made to produce anesthesia with sodium amytal, so that the dose we use has been much smaller.

Although there is a rough relationship between the dose and the weight of the patient there are other factors more important such as:

(1) The age and general condition of the patient. Very elderly and debilitated patients require less sodium amytal.

(2) Toxic patients with an elevated basal metabolic rate will require larger doses. Several toxic goiter patients required 22½ grains to produce sleep.

The method of using sodium amytal has been as follows: If indicated, the patient is given 1/6 grain of morphine, 1/150 grain of atropin, about three quarters of an hour before injecting the sodium amytal. The solution is made fresh for each case. It is given with the patient in bed in his room. The blood pressure is taken just before injecting the sodium amytal and retaken after every 3 c.c. (4½ grains) of the solution is injected. The solution is injected very slowly, never faster than 1 c.c. a minute and as soon as the patient is asleep, or if blood pressure drops too rapidly, the injection is stopped. We have no preconceived idea as to the dose necessary but are content to produce sleep, as we always use an anesthetic. Some patients go soundly to sleep on 3½ grains and others, as in toxic goiter cases, have received 22½ grains. The average dose in this series was 9 grains. Usually, in from three to six minutes the patient becomes drowsy and falls into a profound sleep.

The one giving the injection should be familiar with the patient's condition and also familiar with the possible reactions. The sum total of the effects are obtained almost instantly so that there is not much danger of a delayed accumulative action.

BLOOD PRESSURE, PULSE and RESPIRATORY CHANGES.

The most interesting change in the patient's condition is the fall in blood pressure, the greater fall being in the systolic pressure, with very little change in the diastolic pressure. Fourteen cases showed no change in blood pressure and in one case the systolic pressure dropped 96 mm. In several cases there was a drop of 60 mm. The average drop of the systolic pressure was 17 mm., and of the diastolic pressure was 5 mm.

The drop in pressure occurs early during the injection and reaches the maximum in about ten to fifteen minutes and it usually returns rapidly to the former level about the time the patient reaches the operating room.

The following charts, Nos. I, II, III, illustrate some of the blood pressure changes.

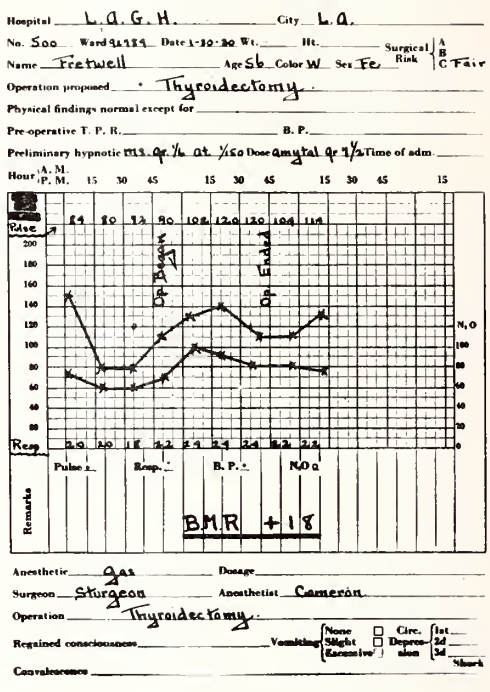
ANESTHESIA RECORD
Hospital L. A. G. H. City L. A.
No. 500 Ward 91 1234 Date 1-30-30 Wt. Ht. Surgical Risk A B C Fair
Name Fretwell Age 56 Color W Sex Fe
Operation proposed Thyroidectomy
Physical findings normal except for
Pre-operative T. P. R. B. P.
Preliminary hypnotic m.s. gr. ⅙ at ½ Dose amytal gr 9 Time of adm.
Hour A. M. P. M. 15 30 45 15 30 45 15 30 45 15
Pulse
Op. Began
Op. Ended
Resp.
Pulse
Resp.
B. P.
N. & O.
Remarks
BMR +18
Anesthetic Gas Dosage
Surgeon Sturgeon Anesthetist Cameron
Operation Thyroidectomy
Regained consciousness Vomiting None Slight Excessive Circ. Depression 1st 2d 3d Shock
Convalescence

CHART I.

Shows a fall of 60 mm. in the systolic pressure only 10 mm. fall in the diastolic. Very little change in the pulse and temperature.

There does not seem to be a constant relationship between the fall of blood pressure and the amount of sodium amytal used, as illustrated in Table II.

TABLE II.

Operation	Age of Patient	Basal Metabolic Rate	Weight	Blood Pressure Before Sodium Amytal	Amount of Sodium Amytal	Blood Pressure After Injection	Amt. of Blood Pressure Change
Hyperplastic Goiter	47	+27	150	152/68	8 gr.	132/70	-20mm.
Adenoma of Thyroid	44	+12	132	160/70	15 gr.	100/68	-60mm.
Adenoma of Thyroid	48	+19	124	155/62	12 gr.	90/67	-65mm.
Acute Appendicitis	45		210	176/80	10 gr.	80/60	-96mm.
Hyperplastic Goiter	48	+24	176	140/70	22½ gr.	130/70	-10mm.
Gastrectomy	62		120	130/80	8 gr.	80/55	-50mm.
Acute Appendicitis	35		138	110/70	13 gr.	110/60	none
Cholecystectomy	46		168	140/80	15 gr.	138/76	- 2mm.
Acute Appendicitis	35		165	110/75	15 gr.	110/75	none
Cholecystectomy	48		196	169/100	11 gr.	160/95	none
Adenoma of Thyroid	46	+22	140	176/110	22½ gr.	170/100	- 6mm.
Hyperplastic Goiter	22	+ 36	110	140/70	15 gr.	100/60	-40mm.

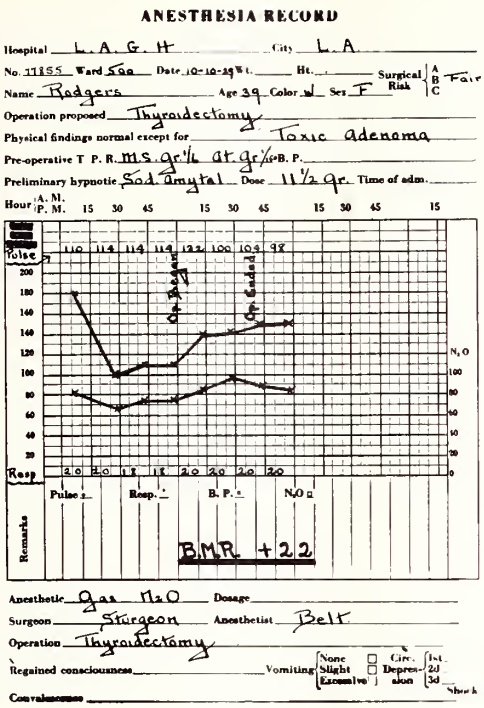
ANESTHESIA RECORD
Hospital L. A. G. H. City L. A.
No. 11855 Ward 500 Date 10-10-29 Wt. Ht. Surgical Risk A B C Fair
Name Rodgers Age 39 Color W Sex F
Operation proposed Thyroidectomy
Physical findings normal except for Toxic Adenoma
Pre-operative T. P. R. MS gr 1/6 at gr 1/150 B. P.
Preliminary hypnotic Sod. Amytal Dose 11 1/2 gr. Time of adm.
Hour A. M. P. M. 15 30 45 15 30 45 15 30 45 15
Pulse 110 114 114 119 122 100 104 98
Op. Began
Op. Ended
Resp 20 20 18 18 20 20 20 20
Pulse Resp. B. P. N2O
Remarks
B.M.R. +22
Anesthetic Gas N2O Dosage
Surgeon Sturgeon Anesthetist Belt
Operation Thyroidectomy
Regained consciousness Vomiting None Slight Excessive Circ. Depression 1st 2d 3d
Convalescence Shock

CHART II.

Shows a fall of 80 mm. in the systolic pressure and only 15 mm. fall in the diastolic. Very little change in the pulse and respirations.

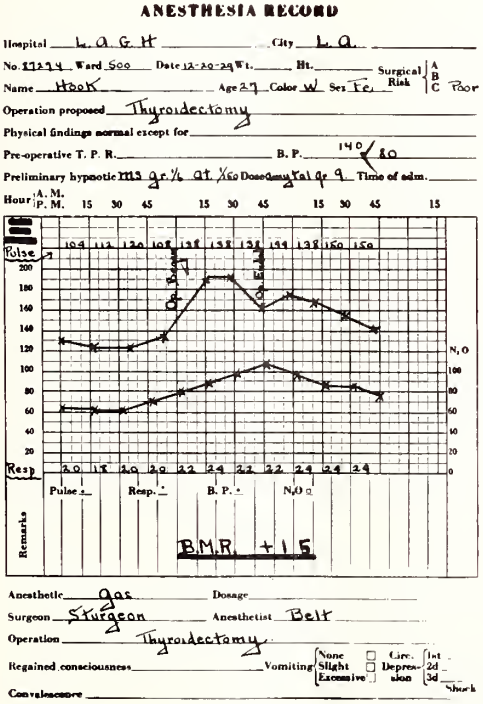
ANESTHESIA RECORD
Hospital L. A. G. H. City L. A.
No. 11234 Ward 500 Date 12-20-29 Wt. Ht. Surgical Risk A B C Poor
Name Hook Age 27 Color W Sex F
Operation proposed Thyroidectomy
Physical findings normal except for
Pre-operative T. P. R. B. P. 140/80
Preliminary hypnotic MS gr 1/6 at 1/150 Dose Amytal gr 9 Time of adm.
Hour A. M. P. M. 15 30 45 15 30 45 15 30 45 15
Pulse 104 112 120 108 138 138 138 138 150 150
Op. Began
Op. Ended
Resp 20 18 20 20 22 24 22 22 24 24 24
Pulse Resp. B. P. N2O
Remarks
B.M.R. +15
Anesthetic Gas Dosage
Surgeon Sturgeon Anesthetist Belt
Operation Thyroidectomy
Regained consciousness Vomiting None Slight Excessive Circ. Depression 1st 2d 3d
Convalescence Shock

CHART III.

Shows a fall of 10 mm. in the systolic pressure, then a rise of 70 mm. Diastolic no fall, but a rise of 30 mm. Pulse varied from 104 to 150. Respirations little affected.

Having had a rather large number of cases in which the fall of blood pressure was rather marked, we have tried giving 3/4 grain of ephedrin about fifteen minutes before injecting the sodium amytal. This method has been used for the last seventy-five cases and the results have been very satisfactory. The drop in pressure has varied from none to 30 mm.

The following charts illustrate the slight change in the blood pressure after using 3/4 grain of ephedrin.

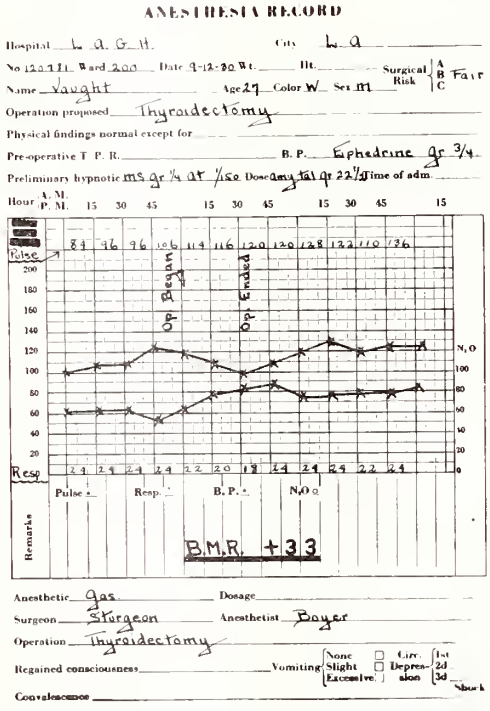
ANESTHESIA RECORD
Hospital L. A. G. H. City L. A.
No. 12211 Ward 200 Date 9-12-30 Wt. Ht. Surgical Risk A B C Fair
Name Vaught Age 27 Color W Sex M
Operation proposed Thyroidectomy
Physical findings normal except for
Pre-operative T. P. R. B. P. Ephedrine gr 3/4
Preliminary hypnotic MS gr 1/4 at 1/150 Dose Amytal gr 22 1/2 Time of adm.
Hour A. M. P. M. 15 30 45 15 30 45 15 30 45 15
Pulse 84 96 96 106 114 116 120 120 128 122 110 136
Op. Began
Op. Ended
Resp 24 24 24 24 22 20 18 24 24 24 22 24
Pulse Resp. B. P. N2O
Remarks
B.M.R. +33
Anesthetic Gas Dosage
Surgeon Sturgeon Anesthetist Boyer
Operation Thyroidectomy
Regained consciousness Vomiting None Slight Excessive Circ. Depression 1st 2d 3d
Convalescence Shock

CHART IV.

Shows a rise of 10 mm. in the systolic pressure. No change in the diastolic pressure. Very little change in the pulse and respirations.

Many cases showed an increase in the blood pressure at the end of the injection, as illustrated in Table III—all received 3/4 grain of ephedrin.

TABLE III.

Operation	Age of Patient	Basal Metabolic Rate	Weight	Blood Pressure Before Sodium Amytal	Amount of Sodium Amytal	Blood Pressure After Injection	Amt. of Blood Pressure Change
Adenoma of Thyroid	47	+24	138	150/105	15 gr.	174/110	+24mm.
Cholecystectomy	11		165	154/100	15 gr.	170/105	+16mm.
Hyperplastic Goiter	24	+28	98	110/80	15 gr.	120/80	+10mm.
Hyperplastic Goiter	19	+33	108	114/74	13 gr.	120/80	+ 6mm.
Obstructive Jaundice due to Common Duct Stone	54		158	112/70	15 gr.	144/80	+16mm.

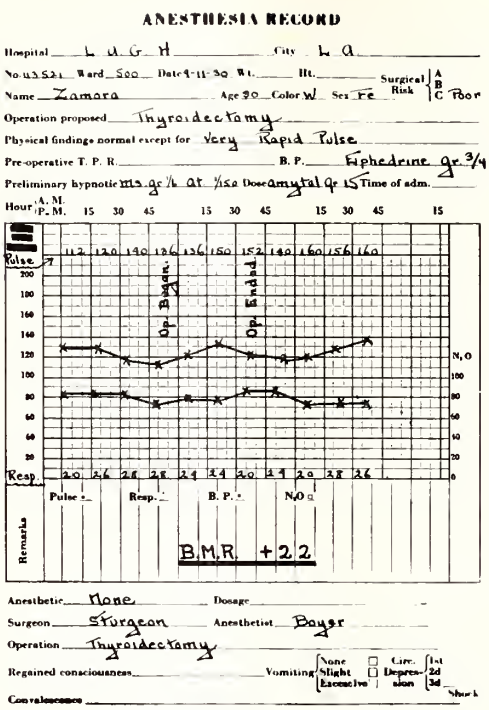
ANESTHESIA RECORD
Hospital L. A. G. H. City L. A.
Name Zamora Age 30 Color W Sex Fe
Operation proposed Thyroidectomy
Physical findings normal except for very Rapid Pulse
Pre-operative T. P. R. B. P. Ephedrine gr. 3/4
Preliminary hypnotic Mo. gr. 1/6 at 1/2 Dose Amytal gr. 15 Time of adm.
Hour A. M. P. M. 15 30 45 15 30 45 15 30 45 15
Pulse 112 120 130 126 136 150 152 140 160 156 160
Op. Began.
Op. Ended.
N,O
Resp. 20 26 28 28 24 24 30 24 20 28 26
Pulse Resp. B. P. N,O
Remarks
B.M.R. +22
Anesthetic None Dosage
Surgeon Surgeon Anesthetist Bayer
Operation Thyroidectomy
Regained consciousness Vomiting None Slight Excessive Circ. Depression 1st 2d 3d
Convalescence Shock

CHART V.

Shows a fall of 10 mm. in the systolic and diastolic pressure. Respirations and pulse very little change.

There has been practically no effect on the pulse rate, as shown in Charts I, II, III, IV and V. The respirations are regular, usually increased. Slight cyanosis has occurred in a few cases.

Supplementary anesthetic agents, as nitrous oxide and oxygen, ether, local and spinal, were used, as follows:

Anesthetic	No. of Cases
Nitrous oxide and oxygen	142
Nitrous oxide, oxygen plus ether	15
Ether	20
Local	10
Spinal	8
No anesthetic	5

Patients under the influence of sodium amytal take the anesthetic much more easily. There is no excitement, no laryngospasm, and the amount of the anesthetic used is much less.

Our preference is for nitrous oxide and oxygen. More oxygen can be used. There is less cyanosis and the muscular relaxation is sufficient in most cases to do any upper abdominal operation.

Although spinal combines very will with sodium amytal, one must remember that spinal anesthetic also depresses the blood pressure. We make sure before giving spinal that the blood pressure has returned to the original level. If not, we give ¾ grain of ephedrin and, if the blood pressure remains low, spinal is not used.

DURATION OF EFFECT

The postoperative sleep lasts from one to eight hours, depending on the dose used. One patient, age 52, with carcinoma of the rectum, slept thirty-two hours on 14 grains of sodium amytal. There was only 5 mm. drop in the blood pressure and the operation was completed without any supplementary anesthetic.

Just before awaking the patients may be slightly restless, but not violent. Usually, a ¼ grain of morphine sulphate will quiet the patient. Patients with hyperthyroidism are more restless than non-toxic cases and require more opiates. About 5 per cent of our patients were extremely restless and one patient was violent.

Postoperative nausea and vomiting are extremely rare, certainly much less than without the use of the sodium amytal.

The administration of fluids both intravenously and subcutaneously is easier while the patient is asleep.

ADVANTAGES

1. The patient is relieved of all preoperative fear.
2. Patient is unaware that the anesthetic is being given.
3. Quiet respirations, making upper abdominal surgery easier.
4. In most cases less of the anesthetic agent is required.
5. Postoperative sleep, with loss of memory for painful events.
6. Absence of postoperative nausea and vomiting in most cases.
7. Also valuable when complications such as hiccups, psychosis, severe pain, idiosyncrasy to opiates, morphine addiction, are present.

DISADVANTAGES AND COMPLICATIONS

1. Moderate degree of hypertension and of hypotension are not contraindication to the use of sodium amytal.
2. In elderly patients with arteriosclerosis and fixed hypertension, sodium amytal should not be used.
3. In patients with badly damaged hearts and hypertension, sodium amytal should not be used.
4. Patients with lung infections, lung abscess or bronchiestasis, only small doses of sodium amytal should be used in order not to interfere with the cough reflex.
5. Persons who are known to be sensitive to any of the barbiturates should not be given sodium amytal.
6. Bronchopneumonia and edema of the lungs are commonly reported.

In this series we have only one case of bronchopneumonia and no cases of pulmon-

ary edema. Both complications are probably due to too large a dose of sodium amytal, with too long postoperative sleep.

CONCLUSION

Any drug as powerful as sodium amytal that can put a patient to sleep within five minutes and that cannot be immediately removed from the circulation, demands great care in its administration. It is only by the best cooperation between the surgeon and the anesthetist that this can be accomplished.

BIBLIOGRAPHY

1. Bourne, Weslay, Bueger, M.D.M. and Dryer, N.B.: The Effects of Sodium Amytal on Liver Function, Blood Chemistry, etc., Surg. Gynec. Obst., September, 1930.

2. Brown, Rexwald: Experience with Sodium Amytal as a General Anesthetic, Ann. Surg., April, 1930.

3. Leake, Chauncey D.; Chemical Adjuncts to General Anesthesia, California and West. Med., October, 1930.

4. Link, Gothe; Sodium Iso-Amyl-Ethyl Barbiturate in Goiter Surgery, Anesth. & Analg., January-February, 1930.

5. Lundy, J. S.; Isenberger, R. C.; Sistrunk, W. E.: Proceedings of Staff Meeting, Mayo Clinic, vol. IV. No. 30.

6. Lundy, John S.: The Barbiturates as Anesthetics, Hypnotics and Antispasmodics, 1000 cases; Anesth. & Analg., November-December, 1929.

7. Lundy, John S.: The Use of Barbituric Acid, Acetylene, Spinal Anesthesia, Tribromethyl Alcohol and Other Anesthetics in the Mayo Clinic in 1929; Minn. Med., April, 1930.

8. Lundy, J. S. and Osterberg, A. E.: Review of the Literature on the Derivatives of Barbituric Acid: Chemistry, Pharmacology; Clinical use; Proceedings of Staff Meeting, Mayo Clinic, Supp. 2, December 18, 1929.

9. Mason, J. Tate and Baker, Joel W.: Experience with Sodium Amytal as an Intravenous Anesthetic; Surg. Gynec. Obst., May, 1930.

10. Mayo, Mm.: Anesthesia; Sug. Gynec. Obstet. January, 1930.

11. Ramsey, Frank B. and Little, Wendell D.: Sodium Amytal-Nitrous Oxide Anesthesia for Thyroidectomy; Surg. Gynec. Obstet., September, 1930.

12. Rethwin, L. A.: Sodium Iso-Amyl-Ethyl Barbiturate; California and West., October, 1930.

13. Sloan, Harry G.: Amytal as an Anesthetic in Operations for Goiter, Ann. Surg., June, 1930.

14. Zerfas, L. G. and MacCallum, J.T.C.: The Analgesic and Anesthetic Properties of Sodium Iso-Amyl-Ethyl Barbiturates, J. Indiana M. A., February, 1929.

15. Zerfas, J. G. and MacCallum, J. T. C.: The Clinical Use of Sodium Iso-Amyl-Ethyl Barbiturate, 2000 Cases, Anesth. & Anal., November-December, 1929.

16. Zerfas, L. G.; MacCallum, J. T. C.; Shonle, J. A.; Swanson, E. G.; Scott, J. P.; andd Clowes, G. H. A.: Induction of Anesthesia in Man by the Intravenous Injection of Sodium Iso-Amyl-Ethyl Barbiturate; Proceedings of the Society for Experimental Biology and Medicine, 1929.

A REVIEW OF THE PRESENT DAY SURGICAL TREATMENT OF CERTAIN DISEASES OF THE CHEST

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(Read before the Annual Meeting of the Medical and Surgical Association of the Southwest, at El Paso, Texas, Nov. 6-8, 1930).

The fact that any particular surgical procedure is new by no means proves that it is an advance over previous operations performed. Wave upon wave of surgical enthusiasm has swept over the world following extravagant statistics, too soon compiled, of new and remarkable operative cures obtained. In the wake of these waves so many times have been unnecessary suffering, chronic invalidism or death. A conservative discussion from time to time of present-day methods in this still adolescent specialty of chest surgery, is well worth while. If this paper promotes such a discussion it will, in the opinion of its author, have served its purpose well, indeed.

The speaker has but recently returned from a tour of inspection through the principal chest-surgery clinics and sanatoria of Europe. The observations which will be made upon the various diseases of the chest are based, therefore, on both the present-day American and European procedures.

TUBERCULOSIS OF THE LUNGS

From 20 to 30 per cent of the residents in the principal sanatoria of Europe today are under artificial pneumothorax treatment. In the Schatzalp Sanatorium at Davos, in Switzerland, 30 to 40 per cent receive such collapse therapy. There is growing tendency in the European sanatoria, as well as here, to begin pneumothorax comparatively early in the course of an essentially unilateral exudative tuberculosis. There exists the same uncertainty abroad, as here, in regard to the length of time that should elapse before a lung, compressed by pneumothorax, may be allowed with safety to re-expand. It still remains a problem to be settled according to the judgment and experience of each physician. When lung re-expansion is decided upon, permanent phrenic interruption is of definite value, not only in reducing the extent of pulmonary re-expansion, but also in lessening the perpendicular pull following adherence of the lung to the diaphragm. Phrenicectomy may benefit greatly when, under artificial pneumothorax, pleural adhesions to the diaphragm definitely prevent satisfactory lung collapse. The Germans report particularly good results following this procedure and the speaker is thoroughly convinced of its value.

PNEUMOLYSIS

Conservatism in the presence of pleural adhesions interfering with lung collapse during artificial pneumothorax, is becoming steadily more apparent. Unverricht is doing one operation for the division of adhesions now, where he did ten five years ago. If a cavity is situated immediately beneath an adhesion which prevents collapse of its walls, division of this adhesion is not without risk. Cavity rupture, even two to three months after adhesion division, not rarely follows. If there are multiple adhesions with one or more of considerable size, their division is usually inadvisable. The longer and thinner the adhesions, the better the prognosis for relief after their division. Pneumolysis should not be attempted during the first three or four months after the beginning of artificial pneumothorax since pleural resistance to bacterial invasion is notably less during this period. Moreover, many pleural bands that at first resist, often give way under the constant intrapleural pressure. In brief, if the collapse of the lung is unsatisfactory after several months of pneumothorax, and if there are one or more comparatively small adhesions which, divided, might allow the lung to be satisfactorily collapsed, and if there is no cavity within the immediate vicinity of these adhesions, intrapleural pneumolysis is definitely indicated. If, however, the case does not meet these requirements, thoracoplasty often is attended with less risk and more prompt permanent relief.

The open method for the division of pleural adhesions is almost universally condemned. The great majority of patients so treated develop tuberculous pleural effusions, many of which sooner or later become secondarily infected.

PHRENIC INTERRUPTION

There is no question but that this is one of the most abused procedures pertaining to chest surgery today. It is extremely unfortunate that bad results following any given method of treatment in so chronic a disease as pulmonary tuberculosis, should appear, as a rule, so slowly that without careful scrutiny the causative factor is often overlooked. It is this unfortunate fact that hides from us many thoroughly bad results following phrenic interruption. The more conservative men, experienced in both medical and surgical treatment of tuberculosis, rarely, if ever, advise phrenicectomy in the presence of an acute exudative tuberculosis, even though this process is relatively well limited to a lower lobe. Dumerest, in checking over at Hautville cases of progressing exudative tuberculosis where phrenicectomy had been performed, found that, of those operated upon three or more years before, none were alive. His conclusion was that the phrenic interruption had not necessarily contributed to their deaths but that it certainly had not been successful in checking the advance of the tuberculosis.

In chronic productive tuberculosis the situation is an entirely different one. Manifestly, fibrosis and chronicity indicate in a patient more than usual resistance to the tubercle bacillus. In such a situation anything that may contribute to a lessening of the mechanical disadvantages interfering with the obliteration of active tuberculous areas, or to a lessening of the mobility of these parts, is indicated if the patient is not steadily improving, provided the procedure under consideration is warranted by the probable amount of good that it will do. In the speaker's opinion, the routine institution of phrenic exeresis immediately preceding early thoracoplasty, is neither indicated nor advisable. If, under the flouroscope, little or no motion of the diaphragm can be seen and there is extensive fibrosis throughout a lower lobe, little change in the position of this diaphragm can be expected by its paralysis. On the other hand, if the lower lobe shows no tuberculous activity and is comparatively free of markings suggesting old healed tuberculosis, phrenic exeresis succeeds only in throwing out of commission to a greater or less extent that portion of the lung which the patient could use following thoracoplasty. Moreover, the vital capacity in the tuberculous patient is from 20 to 40 per cent less than normal. Phrenic interruption reduces the vital capacity still more and this reduction persists from two to three months just at a time when the need for maximum efficiency in gaseous interchange and cardio-respiratory function is most necessary. If, on the other hand, there is definite diaphragmatic mobility with respiration, and a careful study of the x-ray films, plus the physical findings, leads to the conclusion that a preliminary phrenic exeresis is indicated, the patient should be allowed several weeks to recover his cardio-respiratory equilibrium before thoracoplasty is begun.

In lower lobe tuberculosis of the productive type, phrenic interruption has given dramatically good results. Comparatively small cavities scattered through the lung in this type of tuberculosis occasionally disappear with astonishing rapidity following phrenic exeresis. In large cavities with extensive pulmonary fibrosis, it is seldom that phrenic interrupution, as an isolated procedure, is of great value.

The belief is quite general that expectoration is attended with less effort following phrenicectomy. This is interpreted as meaning that coughing is more efficient. I am convinced that, after the first two or three weeks following phrenic interruption, coughing is not made more efficient by this procedure. In fact, I feel that thorough emptying of the lower lobe bronchi is rendered more difficult. It is amazing, during bronchoscopic examination following phrenic interruption, to see how comparatively immobile is the lower lobe even during the violent coughing attacks that may occur during bronchoscopy. That patients suffering from pulmonary tuberculosis are definitely benefited by phrenic interruption, is most certainly true, but this benefit is probably due to decreased mobility of the affected lung rather than to increased ease in purulent evacuation. Coughing efficiency within the lobe itself is probably decreased. The ciliary action within the bronchi and the peristaltic movements of their walls, unquestionably are of the greatest aid in removing purulent material. It is very probable that, without these two factors, preenicectomy would frequently produce disastrous results. Repeatedly I have produced temporary diaphragmatic paralysis in the treatment of a non-tuberculous lung abscess. There has usually been improvement for two or more weeks, then the condition slowly has grown worse. The lung involvement has extended. I believe that diaphragmatic paralysis decreases lung mobility but does not aid bronchial drainage.

EXTRA PLEURAL THORACOPLASTY

(In Tuberculosis). The selection of cases for this procedure is becoming more and more careful. The rule may be laid down that, with rare exceptions, thoracoplasty does not arrest advancing tuberculosis. Theoretically it would seem that thoracoplasty should accomplish in exudative tubreculosis the amazingly good results that artificial pneumothorax does. This is not borne out in fact. Given a patient with tuberculosis, whose inherent resistance is not great enough to stop the advance of the tubercle bacilli, and thoracoplasty is definitely contraindicated for arresting the progress of the tuberculosis itself. Where, however, there are mechanical difficulties due to adherence of scar tissue to surrounding comparatively immobile structures, the body may be unable on account of these mechanical difficulties to quiet the tuberculous activity. In such a situation, relaxation of the chest wall, graded intelligently both as to the extent of the rib resection and the number of ribs to be removed at each procedure, overcomes this mechanical barrier that has prevented arrest of the tuberculosis and allows nature once more to resume its fight against the tubercle bacilli without handicaps. If the past history of the patient discloses a resistance which was able at first to control the advance of the tuberculosis, the prognosis in such cases is very good. If thoracoplasty is performed on a patient who has never shown definite tissue reaction to the tuberculous invasion, the results, in my opinion, are almost invariably bad.

The three cardinal points for consideration when thoracoplasty is contemplated in a given patient, are: first, his past and present resistance to tuberculosis; second, the mechanical situation that exists and how much, if any, relief of this can be accomplished by thoracoplasty; third, how great a load, from the patient's history, the heart has had to carry and how well able it is to meet the emergency of the drastic and sudden physiological change occurring with multiple rib resection.

The optimum time, certainly, for thoracoplasty is during the first five years of suppuration. After ten years of chronic toxicity, and the patient's general resistance is greatly decreased and his cardiac reserve is very low indeed. There can be no definite age limit established. A man of thirty-five with a history of eight or ten years of chronic pulmonary tuberculosis is a poor risk for thoracoplasty. The risk is increased if his life has been a particularly inactive one. A man of forty-five, on the other hand, whose general condition is comparatively good, whose resistance to tuberculosis has been above the average, and whose history of pulmonary suppuration is within the five-year limit, may well go through thoracoplasty with splendid results.

MULTIPLE RIB RESECTION IN LUNG ABSCESS

In the early days of non-tuberculous lung abscess, complete rest and medical supportive measures are indicated. The external drainage of an abscess in its acute stage ends in disaster. Surrounding an area of necrosis within the lung is a zone of pulmonary lobules choked with pus. Gradually, as the acuteness of the infection subsides, this pus within the surrounding lobules is expectorated, leaving a fairly well-defined abscess area. It is essential therefore that the coughing efficiency be not decreased. When an abscess is drained externally many bronchi are necessarily opened. Air, with each respiratory cycle, instead of contributing to the efficiency of the cough and producing expectoration, rushes back and forth through these bronchial fistulae. The com-

pression, which is so essential to bronchopulmonary drainage, is lost. Purulent material in the surrounding lobules can not, therefore, be expectorated and necrosis in these tissues follows. Thus the vicious circle is complete and death from advancing pulmonary suppuration follows. Until the area of lobular suppuration surrounding an abscess is evacuated of its pus by expectoration, external drainage of a lung abscess may not be considered.

When, during the acute stage, an abscess has ruptured into a bronchus and purulent expectoration exists, postural drainage is of very great help. During postural drainage, however, when the patient subjects himself to most violent spasms of coughing there is considerable danger of hemorrhage. It is the rule, following a severe hemorrhage, for blood containing bacteria to lodge in contiguous or distant bronchiles, from which secondary abscesses often develop. This complication is a disastrous one. Postures producing such violent spasms of coughing should therefore be avoided. Often, bronchoscopic catheterization of the main bronchus draining an abscess, makes drainage much more free and contributes definitely to healing. If after six or eight weeks the patient is not showing steady improvement, atrificial pneumothorax very carefully given with repeated but small amounts of air, may contribute largely towards abscess wall collapse. Artificial pneumothorax should never be undertaken, however, unless one is convinced that the abscess lies deep within the lung. If, during this treatment, x-rays show adhesions to the chest wall, pneumothorax should be at once discontinued on account of the danger of rupture into the general pleural space. When the above measures have failed to produce improvement, it is customary to consider external drainage. The procedure is done in two stages: first, a local thoracoplasty at the point on the chest wall nearest the abscess; then, as a second step, wide cauterization into the abscess itself. Even the most favorable cases after this procedure drain for many months. The danger of septic cerebral emboli is a very definite one. Many cases never entirely heal. In multiple abscesses this procedure is notoriously ineffective. External drainage, however, has reduced the mortality nearly fifty per cent in comparison with continued medical treatment.

The writer has developed a new treatment for subacute and chronic lung abscess, which, instead of interfering, as external drainage does, with nature's method of repairing the lung following local necrosis, is meant rather to aid nature in overcoming the mechanical barriers which are porhibiting repair. In pulmonary suppuration, whether it be acute or chronic, the body depends for drainage upon the bronchi. When the patient's resistance is good and bronchial drainage is free, the majority recover spontaneously. It is usually the failure of the abscess walls to collapse that calls so urgently for surgical relief. The procedure is, briefly, as follows: Ribs are resected somewhat widely in the region of the lung abscess and, by slow and gradual compression through gauze packing, the abscess wall, which by adherence to the surrounding structures has prevented healing, is relaxed. With this hindrance removed, the lung is able once more to proceed with its own efficient method of broncial drainage and repair. While it is too soon to report the cases treated in this manner, yet in the comparatively limited series on which it has been tried the results so far have been very gratifying. It is amazing how a comparatively limited removal of chest wall support will aid lung healing. We have found that rib resection lateral to and somewhat above the site of the lung necrosis seems to be more effective than sudden and marked relaxation directly over the abscess itself. The chest wall is strapped tightly in order to preserve intrathoracic compression for bronchial drainage. It is essential that the abscess wall be very gradually relaxed in order to avoid as far as possible the occlusion of bronchi draining the abscess.

TUBERCULOUS EMPYEMA

This is truly one of the most difficult problems confronting those who treat diseases of the chest. Opinions in regard to treatment have been, up to the recent past, nearly as numerous as the doctors who treat them. Gradually, out of the chaos of conflicting opinions, rational effectual treatment is developing.

Pleural effusions occurring during the course of pulmonary tuberculosis may be divided roughly into three types:

(1) Serous pleural effusions containing few blood cells and no tubercle bacilli, occurring with or without artificial pneumothorax. The consensus of opinion today is that obliteration of the pleural space is not indicated unless thoracoplasty is held to be the procedure of choice for the underlying lung. It is important, of course, that the character of the pleural fluid be watched.

(2) Sero-purulent effusions rich in lymphocytes and containing tubercle bacilli but no secondary pyogenic organisms. If this effusion persists, despite frequent aspirations, for several weeks, and if the fluid becomes more purulent and thicker, the pre-

vailing opinion in Europe today and the growing conviction of many in North America, is that thoracoplasty is usually advisable. It is during the course of lung collapse by artificial pneumothorax that this type of effusion usually develops and a thoracoplasty, therefore, is but the substitution of one procedure for another to achieve the same end. It is true that various dyes, iodine solutions, formalin in glycerine, and so forth, have been used with eventual obliteration of the pleural space. The danger of secondary infection during this time is always a serious menace, however. Even though the obliteration of the pleural space may be accomplished it is by no means rare to find that the mediastinal displacement to the affected side is so marked that serious circulatory disturbances develop. The risk of a two-stage or three-stage thoracoplasty is very little since the lung is already collapsed. The constant menace of secondary infection while the tuberculous empyema exists, is a considerable one.

(3) Tuberculous empyema with acute secondary infection. Few complications are more serious in the course of pulmonary tuberculosis than this one. The physiologic demoralization of the patient is extremely rapid. The death rate is terribly high. The initial treatment of this condition is conservative. Aspirations with the immediate introduction of one of several dyes, of Rivinol of Jesson's Iodine Solution, or of formalin in glycerin, is the first procedure. The response to this treatment depends upon the extent of the secondary infection. If the inflammation is comparatively well limited to the pleural surfaces, even though absorption through the lymphatics be considerable. relatively complete aspiration of the purulent material and thorough lavage with some mild antiseptic usually produces improvement within a few days. If the source of the secondary infection is eliminated, the secondary organisms may disappear entirely. Unfortunately, in the majority of cases the infection extends everywhere throughout the thickness of the pleura and even may activate the subjacent lung tissue. When the patient becomes steadily and alarmingly worse under pleural lavage, it should be assumed that the latter condition exists. Ultra-conservative measures lead then only to disaster. The Europeans do a pleurotomy with or without rib resection without further delay, as a rule trying to maintain air-tight drainage. Pleural lavages are frequent, though it is generally acknowledged that by this method but a small portion of the empyemal walls is reached by the solution. Usually the patient's condition has become so grave that collapse therapy is precluded. He must be improved before surgery may be considered. It is during this time that the mortality is so great. The writer is becoming more and more of the opinion, since, in an overwhelmingly majority of cases, lung re-expansion can never occur in this grave type of tuberculous secondarily-infected pan-pleuritis, that wide-open drainage of this collection of pus should be instituted while the patient's general condition is comparatively good, in order, as far as possible, to maintain it so. Gauze saturated with some of the several antiseptic solutions, packed snugly against both the parietal and visceral pleura, will come in intimate contact with all parts of the infected cavity. Archibald of Montreal, is the only one so far who (to my knowledge) has remonstrated against these prolonged conservitave measures. If the patient's resistance permits him to survive these early days, he gradually begins to regain his strength, and then, at the earliest possible moment, graded extensive thoracoplasty is performed, to bring in apposition the parietal and visceral pleurae. This procedure is the logical one. It is surprising in what a large percentage of cases healing occurs with or without a small draining fistula, despite the fact that the process is basically tuberculous. The earlier the pleural walls can be brought together, the more assured we can be of satisfactory healing. The point for emphasis, therefore, in the treatment of this latter class is that free and dependent drainage should be, if not at once accomplished, at least not delayed until the patient is nearly moribund. While it is surely granted that the patient's inherent resistance is of the greatest importance, the proper time for the establishment of free drainage may, nevertheless, decide his fate.

BRONCHIECTASIS

It is probable that many times this sort of chronic bronchial suppuration occurs in patients who were born possessed of markedly dilated bronchi. No symptoms develop referable to them, however, until some acute respiratory disease produces inflammation in their walls. How often following whooping cough, measles, or pneumonia, a persistent productive cough proves to be due to a bronchiectasis, the etiology of which cannot be satisfactorily explained by the recent acute disease alone!

Rest, careful attention to cranial sinuses and the relief of upper respiratory infections, plus postural drainage have been the routine procedures which have proved the most effectual. Very recently Ochsner has reported a considerable series of cases treat-

ed by intrabronchial introduction of lipiodol. Twenty-eight of the cases so treated were relieved of their symptoms. The secret of his success is due, apparently, to his thorough anesthetization. Thorough cocainization of the fauces and anterior pillars, including the tissues on either side of the base of the tongue, renders the patient temporarily unable to swallow. The lipiodol is then poured down over the base of the tougue. In this way pus in the dilated bronchi of the lower lobe is, in a very great measure, replaced by the lipiodol. This thorough replacement is apparently responsible for his splendid results. It is a well-established fact that in bronchiectasis involving both lower lobes, if there is relatively little involvement on one side, local measures bringing about improvement on the side showing the greater involvement produce often marked improvement in the contralateral side. Artificial pneumothorax, therefore, on the side of the more extensive involvement, not infrequently is of great benefit whether there is minor involvement of the other side or none at all. If the lower lobe is the seat of the bronchiectatic involvement and it is found that it does not pull free in its mesial half from the diaphragm, phrenic interruption occasionally greatly aids during artificial pneumothorax treatments. If the bronchiectatic involvement is extensive but limited to a lower lobe, and if the measures enumerated above have not been successful, lobectomy certainly is the method of choice. Bronchiectasis is progressive. The prognosis for continued self-support for the patient is definitely limited. There are at best but a few years of even comparative comfort left to the patient. An operation, which in experienced hands has a mortality of fifteen per cent or less, represents one of the recent outstanding advances in the treatment of this dsiease.

The principles of the procedure are thoroughly sound and are, in brief, as follows: It is essentially a two-stage operation. At the first stage the 7th, 8th and 9th ribs on the affected side are resected from the spinous processes to the mid or anterior axillary line. The pleura is then widely opened. The lung within collapses. The lower lobe is gently freed from the lobe above and from the diaphragm. If this cannot be thoroughly done this type of lobectomy must be abandoned. If one is successful, however, the lobe is freed to the hilum. The pulmonary ligament is partially divided and stripped upward. Following Alexander's suggestion, all the pleural surfaces, not only of the lower lobe but of the lobe or lobes above, and the interlobar fissures are rubbed with dry gauze. This irrigation is sufficient, with re-expansion of the lung, to cause adhesions of the visceral pleura to the chest wall. The incision in the chest wall is then closed tightly. At the second stage, some six or eight days later, the original incision is opened. The lung is found uniformly adherent. The lower lobe is carefully freed from the chest wall, the diaphragm, and the lobe above. The latter remains adherent to the chest wall and does not collapse. Infection of the general pleural cavity is thus avoided. The hilum of the lower lobe is easily exposed, doubly ligated, and these ligatures in turn are fastened to the soft spots of the chest wall. The lower lobe, which by this time has shrunk to approximately one fourth of its original size and has become black, is left to slough off exteriorly on the chest wall. The wound is tightly closed about the stump. The local pleural infection following this is controlled by a stab wound at the costo-phrenic angle. In the writer's opinion, as experience in the technic in this operation increases, the mortality in this type of lobectomy will be reduced within a comparatively short time to ten per cent or less.

Lobectomy as performed in Sauerbruch's clinic and in Zaaijer's, is also carried out in two stages. The procedures in principle are essentially the same as ours. In place of immediate stump ligation, however, a rubber catheter under tension is anchored tightly about the lobe hilum and by steady contraction gradually produces strangulation of the lobe distal to it, with eventual amputation. Their end results vary little from ours.

For bronchiectasis limited to a lower lobe, or for early carcinoma within the lobe bronchus, it is of outstanding value, and when no other procedure offers hope, lobectomy should certainly be considered. If artificial pneumothorax is tried and proved unsuccessful and lobectomy is decided upon, the lung must not be allowed to re-expand until the time of operation, since the pleural adhesions following lung re-expansion may prevent subsequent freeing of the lobe for removal and so preclude this comparatively safe type of lobectomy.

In the event that it is found impossible within the limits of safety to free the lower lobe for excision, Graham's cautery pneumectomy is the procedure of choice. By the actual cautery, after extensive rib resection, the dilated bronchi filled with pus are burned across so that the purulent material, by gravity, empties itself into the wound. This operation often gives splendid results. The mortality, however, is approximately twenty-two per cent. One hesitates, there-

fore, to advise this procedure strongly to a person still in comparatively good health. When nothing less radical can be offered him, however, and he realizes that the prognosis is black indeed without operation, the risk is worth the taking.

Indications and contra-indications have been stressed in this paper, for they constitute the frame work which, when properly arranged, makes the finished structure secure. Cerebration is infinitely more important than manipulation in producing cures in diseases of the chest. With a broad knowledge of thoracic physiology and anatomy, chest surgery per se is not more difficult than major surgery elsewhere in the body. To the man who knows how much to do and when to do it, comes the most success, even in chest surgery.

TRACHEOBRONCHAL LYMPH NODE TUBERCULOSIS

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(Read before the El Paso County Medical Society, October, 1930.)

The subject which I have to present to you tonight is one which has, I believe, a profound interest for all; namely, the character, pathogenesis and clinical course of childhood tuberculosis.

The title "Tracheobronchial Lymph Node Tuberculosis" was selected in the effort to stress the importance of the infection of these glands in infancy and childhood. The subject will be taken up by a discussion. first, of the anatomical pathology involved; second, of the experimental work brought forth in recent years, especially emphasizing the differences between the primary and the secondary infections of tuberculosis and stressing the extremely acute character of the primary infection as opposed to the chronic; and lastly, cases illustrating the points made, will be cited.

Dr. Opie, professor of pathology in the University of Pennsylvania, and director of laboratories of the Henry Phipps Institute, has well stated, "Tuberculosis of early life has the characters of a primary infection; whereas, tuberculosis of later life is a disease modified by acquired immunity."

Parrott, as early as 1876, stated, "There is no affection of the lungs which is not also present in the adjoining lymph glands, and vice versa; no changes occur in the peribronchial lymph glands without analogous ones in the lungs."

Cornet, of France, has shown that regional lymph glands enlarge at the point where infection occurs.

Albrecht, in 1906, pointed out that one can usually discover a gross pulmonary lesion corresponding exactly to the regional lymph nodes involved.

Nagaeli, likewise, stated, "That only a pulmonary lesion could be assigned to a tuberculosis of the bronchial glands; the primary focus being in the lungs themselves." This, therefore, shows the inter-relationship between primary pulmonic lesions and adjacent lymph node involvement.

Dr. Abt has classified bronchial gland tuberculosis under the following heads:

(1) Tracheobronchial lymph node involvement.

(2) Bifurcation lymph node involvement.

(3) Hilar gland involvement, the last being sub-divided into the two divisions of bronchial pulmonary lymph node involvement and pulmonary lymph node involvement.

It may be stated that Abt points out that the glands of the right side are usually more involved than those of the left.

Funk, clinical professor of medicine at Jefferson Medical College, and a contributor to "Oxford Monographic Medicine," states, "In early childhood, the primary focus occurs in any part, not infrequently the pleura, while the adjacent lymph nodes at the hilum are always affected, sometimes more conspicuously than the primary focus itself." This combination of pulmonary and lymph node involvement, as a result of first infection, is termed the "primary complex" and it has been shown that these primary pulmonary lesions are usually small.

Opie, of St. Louis, following postmortem studies of both children and adults, has found primary lesions in 43 per cent of children of ages 2 to 5 years, in 55 per cent of children of ages 5 to 10; in 65 per cent of children, 10 to 18 years; and in 90 per cent of persons of ages 50 to 70 years. Furthermore, he states, in a very recent article, that results of tuberculin tests done by the Mantoux intradermic method on 4,100 children, show a gradual increase in incidence of reaction, from 47.2 per cent at age of 5 years, to 95.3 per cent at 18 years, which is only moderately above the figures as determined from autopsy examinations.

Furthermore, renewed study of the anatomic pathology of tuberculosis, by means of roentgenologic films prepared from lungs removed after death, has shown that, in persons dying from chronic pulmonary tuberculosis of the adult type, small primary lesions, as shown by calcified scars of healed tuberculosis acquired during childhood, are almost invariably found.

J. Carr, of England, following morbid

pathological studies, has determined that the primary source of infection of cervical lymph glands is usually the tonsils or some portion of the pharyngeal fauces. The mediastinal glands have, as a primary focus, the lungs, and the primary source of infection of the mesenteric nodes is an often inconspicuous break in the alimentary tract. Restated, one may say (1) that in a previously uninfected person infection of the tonsils or fauces by tubercle bacilli induces a cervical adenopathy; (2) primary focal infection induces bronchial gland involvement; (3) primary intestinal tract infection induces the so-called tabes mesenterica.

Abt, in speaking of the pathology of tuberculosis, states, "Tuberculosis in infancy is an acute disease, often ending fatally with miliary lesions that fail to become encapsulated; while tuberculosis in adults is a chronic disease that easily tends to recovery." In this regard, the experimental studies of Opie with immunized and non-immunized guinea pigs, is quite enlightening. In normal animals injected with foreign proteins for the first time, the protein rapidly leaves the site of injection, producing no inflammatory reaction, and enters the circulating blood, where it remains. In animals immunized and sensitized by such an injection, reinjection with the same foreign protein produces intense inflammatory reaction with necrosis at the site of entry.

Opie has shown that foreign protein on second injection is arrested by inflammatory reaction at the site of injection, from which it can be recovered almost quantitatively.

The paradox betwen susceptibility to local inflammation and necrosis, on the one hand, and resistance, that is to say, immunity, on the other hand, is only apparent, for the local inflammatory reaction is the effective means for protection of the internal organs. The similarity between reaction of an animal to a previous foreign protein and the reaction of an animal to a second inoculation with tubercle bacillus, is demonstrated by works of Krause and Willis, who show, by inoculation of excised tuberculous tissue into normal guinea pigs, that there is a rapid dissemination of tubercle bacilli from the site of inoculation, whereas, in immunized animals the infection is remarkably retarded. In the normal animal transit of bacilli from point of entry into the skin to the local lymph nodes 4 or 5 cm. distant, was made in 24 hours or less; in immunized animals, transit for the same distance required from 2 to 3 weeks, and the number of bacilli reaching such nodes was greatly reduced. Thus, from experimental evidences, one can state that inflammatory reaction produced by tuberculosis in a susceptible animal prevents dissemination of the bacteria.

The problem of frequency of pulmonary infection is made somewhat clearer by studies of Lueri, of Henry Phipps Institute. He injected tubercle bacilli intravenously into rabbits, using both human and bovine bacillus, and, by methods developed by him, determined the number of bacilli surviving in any one organ at a given time. He shows that tubercle bacilli are deposited in greatest numbers in the following organs in the order named: (1) the spleen; (2) in diminishing numbers in the liver, lung, marrow and kidney. At first, the bacilli multiplied in all the organs; the human bacillus according to its pathogenicity in vitro more rapidly than the bovine, but, with the bovine type, destruction of these organisms begins after 4 weeks in the liver, spleen, and marrow, but they continue to multiply in the lung.

With the human bacillus, multiplication in the lungs is far greater than in other organs, and destruction proceeds more slowly.

In immunized animals destruction of bacilli follows inoculation almost immediately, although bacilli persist in the lungs in large numbers for months. This experimental work is in keeping with the story of the pathology of infection in the bronchial lymph nodes as found in infancy and childhood.

Garrod, Batton, Thursfield and Patterson, pediatricians of England, in writing of intrathoracic tuberculosis, speak of infection by inhalation to a small focus, where primary infection starts with extension from this primary focus to the adjacent lymph glands. There one of two processes ensues: (1) caseation, fibrosis, calcification and healing of the lymph nodes, or (2) caseation with subsequent rupture of lymph node contents into the trachea, bronchus, pleura, esophagus, pericardium or blood vessels, following which, one may get one of the following types of distribution:

(a) Miliary tuberculosis, pulmonary
(b) Miliary generalized tuberculosis
(c) Tuberculous meningitis
(d) Direct spread into the hilar glands and pulmonary glands
(e) Retrograde lymphatic spread causing apical tuberculosis.

It is because of this danger of caseation and rupture of lymph nodes into the bronchus or blood vessels, causing widespread pulmonary or generalized miliary tuberculosis, that the subject of bronchial lymph-

node involvement as the primary childhood type is so important.

That the pulmonary infection is the disease of greatest import is shown by the fact that 90 per cent of all deaths from tuberculosis are intrathoracic in origin, and, as the term "primary complex" includes involvement of the adjacent lymph nodes, we can readily understand the importance of their infection in young children now infected for the first time.

Next, I wish to speak concerning the routes of infection and later of their sources. First, there are no known cases of germinative infection. Second, placental tuberculosis does occur and tearing of such a tuberculous placenta during birth may transmit the organisms to the child; in fact, organisms have been recovered from the blood of the umbilical cord and liver of the newly born. Also, amniotic fluid can be a source, but, by far the majority of infections that natal: The two methods of infection that occur, are naturally post-natal. Third: Post- undoubtedly produce the vast majority of cases are: infection by inhalation and infection by ingestion.

Von Pirquet estimated that 95 per cent of all cases occurred by this respiratory, bronchogenic or aerogenic route of infection. Cornet, Flugge and Ghon all favor the inhalation method; but, on the other hand, Von Behring and Calmette favor the intestinal route, as the primary one. Von Pirquet, Hamburger, Koch and Finklestein give the alimentary tract a second place as a portal of entry. All authorities on sources of inflammation place infection of the alimentary tract as more common after the first year, with infection of the bronchial nodes as the most common during this year of life; but, without much doubt, man as an individual with active tuberculosis is our main source of infection. Nuttall estimates that such a phthisical patient expectorates from one-half billion to four and one-third billion bacteria per 24 hours and Lamson has shown that 67 per cent of individuals, where there has been contact with active tuberculosis, show evidence of infection.

Carr, of England, shows that the bovine tubercle causes one half of the fatalities of abdominal tuberculosis, causes 50 per cent of the cases of cervical adenitis and about the same percentage of cases of lupus; but that bronchial lymph-node involvement is almost invariably due to the human organism. Avian tubercle bacillus is a very mild infection for humans and need not be considered as a pathogenic organism of tuberculosis.

Further evidence that patients harboring the active disease are the greatest source of infection for children or infants, is shown by the following citations.

Reich pointed out that in a certain German city a certain tuberculous midwife made it a practice to suck the mucus from the mouth of the newly born and, in thirteen months, ten infants so delivered died of tuberculous meningitis. Among those delivered by all other midwives, not a single child contracted the disease. Also, three Japanese workers have shown that the tubercle bacillus can be found in the breast milk in ten out of thirteen nursing mothers with cases of incipient tuberculosis, and in the breast milk of all with far-advanced tuberculosis.

Funk pointed out the following order of frequency of involvement of the organs: (1) the lungs, (2) the bronchial glands, (3) the pleura, (4) the spleen and liver, (5) the mesenteric lymph nodes.

Next, the study of resistance and of its factors will be presented. It has been conclusively shown that the primitive races acquire the infant or childhood type of tuberculosis with usually fatal results, while the civilized races have an acquired resistance causing a chronic form of disease with a great tendency to limitation and recovery.

Individually resistance depends on age, sex, previous diseases and social and economic factors. In the first year of life the disease is very acute and has a high mortality. From five to fifteen years, resistance breaks, and it has been shown that, during the so-called productive period of life, the highest mortality occurs.

In children, particularly, measles and whooping cough predispose to the disease. Acute diseases of all sorts activate disease present; and chronic debilitating diseases predispose to it, if it is not present. Other factors of individual resistance depend upon social and economic conditions, including exposure, economic status of the country and industrial depression and epidemics.

Now a short outline of symptoms and physical findings, in lymph node involvement. The symptoms may be either generalized or local, or both.

1. Generalized Symptoms.
   (1) Lassitude.
   (2) Loss of appetite.
   (3) Irregular temperature.
   (4) Anemia and wasting.

II. Local Symptoms.
   Signs of pressure or irritation, such as pain or cough. The cough may be harsh or metallic and catarrhal.

III. Physical examination with enlargement

of the mediastinum lymph nodes, reveals:

(1) Dullness on percussion between the vertebral column and the border of the right scapula.

(2) The Eustace Smith bruit may be heard over the right sterno-clavicular juncture when the head is fully extended.

(3) D'Espine's sign, consisting of bronchial breathing and whispered pectoriloquy over the vertebra below the 3rd thoracic spine.

(4) X-rays are also helpful, showing mediastinal shadows cast by glands about the trachea and bronchus. The so-called hilar type of tuberculosis reveals an advanced type of mediastinal gland involvement.

(5) Besides physical signs and x-rays, must be added one test which, in the hands of recent investigators, has proved of greater value than any other one test; namely the Mantoux intradermic tuberculin test. In fact, I believe that the clinicians today are wont to place a strongly positive Mantoux tuberculin test next in importance to a clinical history; for physical findings are only too few and difficult of ascertainment in bronchial lymph node tuberculosis.

By a few examples, I wish to stress the importance of contact in childhood tuberculosis, and the help in diagnosis that may be obtained from Mantoux and x-ray findings. I wish to thank Dr. Barrett for the following clinical data obtained from his clinic and the help he personally gave in the assembling of it.

LUJAN FAMILY

This family has five children. The child first seen was Luis, aged 5, whose father died of pulmonary tuberculosis in the City-County Hospital in April of this year, and whose young sister died, following the death of her father, with tuberculous meningitis, May, 1930.

Luis had a positive tuberculin test; clinical findings were malaise, glandular enlargement, loss of weight and temperature 99.0 to 99.6.

Physical Findings: Negative, with the exception of malnutrition and temperature. X-ray: Shows bronchial-hilar nodes with peribronchial thickening. This child is considered as a case of latent tuberculosis, and here, may I state that Opie makes a distinction between latent and manifest childhood tuberculosis; he calls those cases latent, where positive clinical findings are present with positive Mantoux and suggestive x-ray findings; while manifest tuberculosis is an active progressive lesion easily recognizable by both clinical and x-ray findings.

Second Child: Enriqueta Lujan, aged 3 years, whose symptoms were loss of weight and poor appetite.

Physical Findings: Negative, except for malnutrition and temperature, 99.0 to 100.6. Mantoux Test: Strongly positive in one to ten thousand dilution. X-ray findings: Enlargement with peri-bronchial thickening. This is considered as a case of latent tuberculosis.

Third Child: Roberto Lujan, aged one month, born after the father's death. The child is undernourished and is a feeder in the Clinic with temperature 98.6 to 100; Mantoux test is negative.

SECOND FAMILY (McGhee).

The second family is that of McGhee, two children. Doris, aged eight, was brought to the Clinic because she was frail, undernourished, pot-bellied and nervous. Her father is still living, but has had tuberculosis for the past nine years.

Examination The child shows generalized glandular enlargement, gives the story of repeated attacks of tonsillitis and fever. Pulmonary examination is completely negative. Mantoux test is strongly positive. X-rays show hilar thickening with marked peribronchial thickening.

Diagnosis: The diagnosis lies between latent and manifest tuberculosis, though the signs are hardly sufficient to warrant the diagnosis of manifest tuberculosis.

The brother, aged 12, presents no symptoms and a negative physcial, but has a strongly marked Mantoux test.

THIRD FAMILY (Blackburns.)

Three children:

(1) Louis, aged 6, is brought in because of contact with his father, who has been at a local sanatorium for treatment of pulmonary tuberculosis. The child is underweight. He appears well nourished, but has a temperature varying from 98 to 99. The Mantoux test is 4 plus. X-rays show hilar changes with peribronchial thickening and calcified nodes.

(2) Clarence, aged three, has negative physical examination, with standard weight; however, his Mantoux test is 4 plus and x-rays are suggestive of hilar involvement.

(3) Charlotte, aged ten, has negative history, negative physical findings; only a questionable Mantoux test and negative x-ray findings.

So, in this family, two out of three children have positive evidence of tuberculous involvement from a tuberculous father.

In the Lujan family, one child has died, one is unaccounted for, and 3 have positive evidences of tuberculous infection, following contact with the father, who died of tuberculosis.

In the McGhee family, both children show positive findings of infection by Mantoux, though, clinically, only one child suffers with tuberculous involvement.

FOURTH FAMILY (Hill).

Three children: ages 3 years, 17 months and 3 months. The aunt has been diagnosed as a case of tonsillar tuberculosis; has been fond of the children and in close contact with them. The mother brought in the oldest child for examination and physical findings. Mantoux test is 4 plus; x-rays show interweaving at apices with soft shadows, presumably tuberculous.

Second child, aged 17 months, appears well nourished; no clinical symptoms, but this child has a 4 plus Mantoux and x-rays plainly show soft mottling.

Third child, aged three months, has negative history, negative Pirquet test and x-ray.

In conclusion, I wish to state that, although measles and whooping cough cause

marked enlargement of bronchial nodes and peribronchial thickening, they are likewise the two most serious predisposing causes of childhood tuberculosis.

Hence, in any case of bronchial lymph node enlargement, the presumptive evidence is that of a tuberculous involvement of the lymph nodes until proved negative.

HEART SYMPTOMS DUE TO THE EMOTIONS

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This paper will be confined to a consideration of cardiac symptoms of emotional and functional origin. In one half of all patients that I have examined because either they or some physician feared organic heart disease, I have been unable to find convincing evidence to support such a diagnosis. A large part of errors are due to wrong interpretation of symptoms. A few examples will illustrate:

A small child is found to have an irregular heart and organic disease is suspected. On examination we find that the heart is rapid on inspiration and slows markedly on expiration. We all know, but do not always remember, that this is sinus arrhythmia due to the vagus and has nothing to do with organic disease.

A woman, aged 43, was seen April 29, 1929. She complained of pain about her heart, aching in her left shoulder, shortness of breath, and indigestion. She said that her heart jumped and seemed to turn over. She had a short dry cough, was extremely nervous, and could not sleep. The heart and general examination was negative. Fluroscopic examination was negative for pathology. During the taking of the electrocardiogram I noticed several premature beats and that the cough immediately followed these beats. As we all know, premature beats are harmless. In this case, no doubt, the overdistended left auricle, during the pause folllowing the premature beat, pressed on sensory nerves and caused the cough. The other symptoms were due to fear. She was given quinidine, 3 grains twice a day. She returned in two weeks very much improved, due mostly, I believe, to the fact that her fears had been dispelled by an explanation of the nature and harmlessness of her symptoms.

A man, aged 47, has for 30 days noticed a sensation like a bubble of gas, starting below the heart and going rather slowly up the left side of the sternum into the neck. There is a sensation of tightness over the stomach and he belches a great deal. He has shortness of breath on going up stairs, but no pain. He fears heart trouble. Neither the history nor the physical examination, neither the x-ray nor electrocardiogram gave us any clue to an explanation.

His doctor had him off tobacco without result. I told him to go home, eat a good meal, smoke three or four cigars and return in three hours. I then had him exercise and, on sitting down, I caught several premature beats. I then tried the electrocardiograph and with every premature beat he would say, "There is the bubble again." His doctor was advised to give him quinidine and, at last reports, he has been much better.

Here we see false cardiacs in the making.

The following case was more fully developed:

Mrs. B., aged 34 years, was seen March 11, 1930, because of pain over the heart, going to the left neck, shoulder, and arm, and also in the back between the shoulders. She had dyspnea on walking, and palpitation, which was attributed to gas on the stomach. She was afraid to eat because it aggravated her symptoms.

She had the Spanish influenza in 1918 and pyelitis during her first pregnancy. Fourteen years ago she had rheumatism and one year ago she had a tonsillectomy. Three years ago a lump was removed from her right breast. With the exception of nervousness and palpitation she has been quite well.

December 13, 1929, her second child was born. Everything ran the usual course until the twelfth day. Then, while lying in a cramped position and nursing the baby, she suddenly felt a sharp pain in her groin, and then a choking sensation, and then she fainted. The nurse said that the pulse jumped suddenly to 160 and the respirations were 32. The heart rate maintained the same rate of 160 for a week, during which time she was very nervous and sleepless. After the attack she developed a phlebitis in the right leg. The attending physician felt that Mrs. B. had suffered embolism of the coronary artery, and informed the family that the situation was very serious. The pain about the heart and other symptoms subsequent to the attack were attributed to cardiac infarct. Naturally she became alarmed and constantly feared heart failure and death.

Examination showed many caps and fillings in the teeth and considerable pyorrhea; acne quite marked; thyroid normal; all heart sounds well produced and of normal intensity; no murmurs; an occasional premature beat. Arch 5 cm. wide; heart border 8.5 cm. to left and 3 cm. to right. No edema in lungs or elsewhere, no cyanosis. Liver not palpable; some tenderness to pressure over gallbladder. Pain goes upward. Chest tender over second and third left ribs arteriorly. X-ray of heart showed it normal in size and shape. Graham test gave marked delay in emptying of the gallbladder, which appeared atonic and suggested old cholecystitis. X-ray of teeth negative for abscesses. There was marked general alveolar absorption. The blood count was normal. Hemoglobin, 85 per cent; basal metabolism, 7 per cent. Electrocardiogram was normal. Wassermann negative.

Discussion: This rather extensive examination was made in order to settle definitely the question of heart disease. When a patient comes convinced that she is suffering with a serious heart ailment, mere assertion that she has a good heart will not cure her.

Pain about the heart, going to the left neck, shoulder and arm, suggests angina pectoris. This patient had rheumatism fourteen years ago, which might have left a damaged heart. She has palpitation and dyspnea on walking and gas on the stomach, all symptoms of heart disease. The heart was under suspicion before, but in De-

cember, 1929, she suffered a sudden heart attack with pulse rate of 160, syncope, marked dyspnea, prostration, sleeplessness, cyanosis and pain about the heart. The doctor suspected coronary embolism. Could it have come from incipient crural phlebitis? Could there be coronary sclerosis? The attack began with pain in the leg.

When a heart with normal rate suddenly jumps to 160 and maintains that rate steadily, we are certain that it is due to paroxysmal tachycardia. Paroxysmal tachycardia sometimes occurs after acute coronary obstruction. Syphilis with plastic closure of a coronary artery, is also to be considered as a possibility.

We are dealing with a nervous, highly emotional patient. That does not exclude organic disease. A clot from the leg could not reach the aorta and coronaries, because it would not be able to pass through the lungs. I know of no case of cardiac infarct due to paroxysmal tachycardia. Can we have sclerosis of the coronaries in the early thirties? A man aged 39, who died of cardiac infarct, showed marked coronary sclerosis at postmortem. The normal electrocardiogram does not exclude acute coronary obstruction.

I think that this case shows the necessity of extreme caution in weighing evidence before drawing conclusions. While she has a history of rheumatism which might cause coronary disease, the attack was indefinite and the pain in the shoulder might have been due to neuritis. Her pain about the heart and in the left arm was constant from day to day and not sudden and of short duration, like true angina pectoris due to coronary disease. Palpitation and rapid heart are not symptoms of angina, as a rule. Generally the heart is slow and steady and the pressure high during the attack. Paroxysmal tachycardia does not initiate cardiac infarct. It may follow it.

This woman has two healthy babies and a negative Wassermann. That is against syphilis. X-ray shows an aorta of normal shape, width, and density. Generally with coronary sclerosis there is evidence of aortic sclerosis. Nearly all of her symptoms can be accounted for by emotional factors. The role of the emotions as a cause of heart symptoms will be discussed later.

When it was explained that the evidence for organic disease was entirely unconvicing, she began to improve. Some of her worst teeth were extracted and the rest given attention. A diet was prescribed for her gallbladder, and luminal for sleep, with quinidine to steady the heart. She was assured that, should her tachycardia return, we possess remedies to control and prevent it.

After spending the summer on the coast, she returned much improved, nervously composed, free from pain, and convinced that she has a good heart. The case shows how cardiac symptoms of a quite innocent nature, when misunderstood and misinterpreted, may start a fear complex with more and more heart symptoms.

Mrs. L. R., aged 50, was seen May 17, 1930. For the last four months she has had almost constant pain over the heart and sternum, which is made worse on stooping. There is some pain in the left arm. These symptoms are made worse on walking rapidly and she gets cold during the attacks. Sometimes the pain comes at night; for the last month it is worse on talking. Worry nearly always precedes the pain. The pain is not made worse by physical activity during the attack. She had similar trouble 20 years ago, after her first baby was born. At that time she went to the mountains and got worse. The pain has never been unbearable.

She is irritable, despondent at times, and cries a great deal. She recently inherited valuable property, which the government of Mexico is trying to take away from her. Her father died suddenly at 58, of angina pectoris.

Examination shows a woman of good musculature and youthful appearance, 5 feet 3 inches in height, weight 155 pounds. Eye and knee reflexes, active. No goiter. Blood pressure 110/84. Heart sounds all well produced and of normal intensity. No murmurs.

Fluoroscopic examination of the chest and the heart is negative for pathology. The electrocardiogram is normal in every way. Hemoglobin 85 per cent. Wassermann negative.

While the physical examination discloses no pathology, still the possibility of coronary sclerosis cannot be dismissed in a person of 50. The father died of angina at 58. She is emotional and gets cold during the attacks and they are not brought on by exercise, but worry may precipitate true angina.

Recently, S. A. Levine, of Harvard, tested with adrenalin thirteen cases of undoubted angina attacks. Pain came on within half an hour. The result of adrenalin in my case was entirely negative. So the evidence points to emotional or vaso-motor angina so far, but coronary sclerosis may supervene later. I think, on the whole, that the heart symptoms are of emotional origin due to her father's sudden death and her business and other worries. She was given a low cholesterol, low fat, low proteid diet in the hope of preventing coronary sclerosis, and the harmlessness of her present symptoms was fully explained.

C. F. B., an ex-service man, age 31, was first seen in May, 1925. He complained of pain about the heart, knife-life in character, constriction of the chest, choking sensation, and pain down the left arm. The attacks came on suddenly and the pain was very severe.

He was gassed in France in June, 1918, and was sent to the hospital, where a diagnosis of mitral stenosis and angina pectoris was made. He remained there until February 1919, when he was discharged with the same diagnosis, and was told by the ward surgeon that he would never be able to run again.

My examination showed no sign whatever of organic heart disease. His response to exercise was normal. All laboratory tests negative.

He was seen again Nov. 15, 1927: all physical signs negative. He was still having attacks every week or two and more severe; he was very nervous and sleepless.

A few days later he came to the office with pain in the heart and going down the left arm. He said that it had been almost continuous for four days. He was stooped over, holding and rubbing his arm, and seemed in great distress. I gave him 1/50 gr. of nitroglycerin sublingually, and in a few minutes the pulse fell from 120 to 96 and he got relief. He was last seen Oct. 9, 1929, again in the office. His pain had continued for a week. The pain had the usual distribution. The muscles of the left face were spastic, the left arm and hand cold and numb, the fingers white, and the hand cramped, with inability to relax it. Pinching the skin produced no pain. He said that the pain in his chest was deep seated and felt like the pulling of a hook in his heart. So far as the pain is concerned, the picture in many ways is that of angina due to coronary disease. There was relief by nitroglycerin.

Coldness and numbness and even anesthesia of the arm, may occur in true angina. The sudden onset is also characteristic. That he actually suffers cannot be questioned. I do not believe that he is malingering, though muscular cramps and anesthesia belong to hysteria at times. I believe that almost all of his symptoms are of emotional origin.

Against angina due to organic heart disease are: (1) No physical sign of heart disease. (2) His age: aortic insufficiency is about the only cause of angina under 32 years of age. (3) Cardiogram is normal. (4) The very prolonged attacks. Such prolonged pain might be due to cardiac infarct, but that could not happen so often. (5) Patients with true angina are seldom seen in the office. Walking, and even moving, makes it worse. Emotionalism and coronary sclerosis do not often go together. So I think this is a case of heart symptoms without heart disease. Ten years is a long time for such severe symptoms to continue if due to coronary sclerosis. At present, he looks much better and I have heard of no more attacks.

Mrs. X, age 34, was seen Aug. 19, 1930, complaining of shortness of breath, a smothering feeling, inability to sleep except when propped up straight, dizziness, and fainting spells. She says that at times she is just a nervous wreck, almost maniacal and feels like jumping in the river. Following worry, fright or overwork, she has spells with her heart which begin with a pain as though she had been hit in the epigastrium. This pain goes up over the heart and into the left shoulder and mid-scapular region and down the whole left arm. The pain seems to be inside the body. The first symptom is always lack of air and the chest feels as though it would burst. After the attack she often vomits and has crying spells. The hands and feet get icy cold and the lips and nails are blue. She is alarmed and fears death in an attack. Sometimes amyl nitrate, nitroglycerine, or morphine, gives relief; at other times they have no effect.

Her physician has told her that she has genuine angina pectoris, and to lie perfectly still, as even turning over might cause death. However, she has ridden five miles to see me when in an attack and has talked over the phone during other attacks, with no ill effect. She says that eating peppers or cabbage or other heavy food, gives relief. She talks excitedly and gives a very vivid description of her symptoms.

She has never been well since an attack of scarlatina at 14 years of age. She was delicate as a child and could not stand the summers in New Orleans. So she was sent to the Alps, but could not breathe at high altitudes. She was in bed for several weeks with inflammatory rheumatism when 7 years old. Some twelve or fourteen years ago she spat blood for a long time and was told that she had tuberculosis and could not live for more than six months. Our specialists in El Paso were unable to confirm this diagnosis. Some six years ago she had abdominal pain and other symptoms and was examined thoroughly, including an x-ray study of the digestive tract. She was told that she has gastric ulcer, gallstones, fixation of the appendix, and tuberculosis of the fallopian tubes, and that she would need several separate operations to cure her. It was finally discovered that she was three months pregnant and she got better without operation. During another illness she was told that she had a blocked ureter. On another occasion an abdominal exploratory operation was attempted, but she went "dead away" and no incision was made.

She does the housework and cooks for a husband and four children and is very active except when sick. Her father died of apoplexy. Her mother is living and well at 74.

She weighs 117 pounds and does not gain or lose. She has no goiter. Blood pressure is 120/80; heart rate, 80. The heart is normal in size and shape and there are no murmurs or other signs of heart disease. Fluoroscopic examination discloses no pathology in the heart or lungs. X-ray of the digestive tract shows gallbladder stasis rather marked but no stones. Electrocardiogram normal.

Discussion: We are struck at once by the fact that there is a great poverty of physical signs compared with all the serious ailments that have been discovered. How can we account for her symptoms? Has she true angina pectoris due to coronary disease? She has pain of that type and a very good doctor is convinced that such is her ailment. Her pain has yielded to nitroglycerin, and she has had scarlatina and inflammatory rheumatism, which may cause coronary disease. Syphilis with plastic closure of the coronaries could be present.

On the other hand she has had other ailments, apparently, of a very serious nature, which subsequently were not confirmed. At times morphine in repeated doses has failed to control her pain. I have never seen or

heard of it entirely failing in organic angina pectoris. Her attacks begin with dyspnea. Angina begins with pain and it generally is accompanied by rigidity of the chest and momentary inability to breathe. I have seen her in an attack and injected morphine which gave relief before it could have had effect, I believe, because her fears are dissipated. Is she a malingerer? Not at all, in my opinion. There is a real cause for all of her symptoms, but it is not to be found in organic disease. The emotional element in her case stands out above all else and is the starting point of her perplexing symptoms.

The emotions, such as anger, fear and rage, arouse the mechanism of self defense and lie deepseated in the primitive brain. Cannon and his associates have shown that the decerebrated cat will show fight and the expressions of anger and self defense, such as growling, showing of teeth, putting out the claws and bristling of the tail, immediately on coming out of anesthesia.

The emotional center lies in the hypothalamus, and here and in the thalamus all sensations are relayed before going to the cerebrum. The higher brain centers ordinarily exert an inhibitory effect upon the emotional center, but under great excitement this inhibition is overcome and the mechanism of self protection and defense comes into full play. The outward expression may be suppressed but the inward preparation for defense goes on. The sympathetic nervous system becomes highly excited, the pulse rate is increased, the blood reserve in the liver, spleen and splanchinic areas, is thrown into the circulation, the adrenals are stimulated, the arterioles are contracted, the blood pressure raised, the speed of the blood stream quickened, the sugar stored in the liver is mobilized, and the blood sugar greatly increased, while gastic secretion stops and peristalsis is suspended. Thus we see that the viscera, which are entirely beyond voluntary control, are reached and profoundly affected by the emotions. These facts enable us to trace the genesis of many obscure symptoms. We are here principally interested in visceral pain, especially in blood vessels.

From the time when Harvey touched and handled the ectopic heart of the young Count of Montgomery and found it insensitive so far as he could determine, up to modern times, the internal viscera have been thought to be insensitive. But more recent experiments demonstrate that they are sensitive to adequate stimulation. Most of the hollow viscera, and especially the blood vessels, are painful to stretching, overdistention and overcontraction. Puncture of a vein is painful, puncture of an artery still more so. Ligation of arteries is very painful at times. Spasm of blood vessels is painful, as seen in Reynard's disease and intermittent claudication. The pain of chronic arthritis, in some cases, has been found due to arterial spasm and has been relieved by sympathetic ganglionectomy, resulting in improved circulation and relief from pain.

The weight of evidence points to coronary spasm as the cause of angina pectoris. The Coffey operation of removing the superior sympathetic ganglion has cured angina pectoris. This ganglion has no sensory nerves. It is purely motor and, hence, the effect of its removal can be only one thing and that is to lessen contraction of the coronaries, the overcontraction of which is painful. Recent experiments of passing a ligature about the coronary artery in dogs, and pulling on it, give all the evidence of severe pain and also cause limping in the left front leg, indicating the same distribution of the pain as in angina pectoris in man.

Now to go back to the emotions and our cases. It makes no difference if a highly sensitized coronary artery becomes spastic because of an emotion or because of an overloaded stomach or physical exertion. The symptoms are much the same except for the emotional element or its absence. Even in true angina due to coronary sclerosis, the attack may be precipitated by emotional excitement. John Hunter, who had severe angina for twenty years, often remarked that his life was in the hands of any rogue who chose to anger or plague him.

That which has been said about the heart, applies to the other viscera, because the mechanism of pain in them is the same. Contraction, overdistention, pressure and pulling, cause pain and the result is very similar whether these conditions are brought about by local or organic disease or by overaction of the sympathetic nervous system under the drive of the emotions. It is the same mechanism that is brought into play, just as the fire department responds to a false alarm as promptly as to a great conflagration.

Our efforts in treatment must, therefore, be directed to tracing the source of the alarm and the removal of its cause. This is sometimes easy, as in the first cases recited in this paper. The frightened adult is no different than the frightened child, he must be shown that there is no danger. If the symptoms are of emotional origin they will disappear when all fear has been dispelled and the causes for emotional storms have been removed.

The first thing is a thorough examination that convinces the patient that no stone has been left unturned, and that no dire danger still lurks hidden somewhere. A good history, going into every detail, a complete physical examination, laboratory tests and especially x-ray studies and an electrocardiogram, help greatly in carrying conviction that no tumor, ulcer, aneurysm, or the like, has been overlooked. The genesis of the heart symptoms must be explained with absolute frankness and all questions answered honestly. Any evasion will lead to tha idea that, after all, the trouble is so bad that you dare not tell the truth.

Digitalis should not be given for two reasons: (1) because the heart is sound and it can have no good effect in any way; (2) giving digitalis increases the patient's conviction that he really has a bad heart.

Quinidine to regulate the cardiac rhythm does good because it helps to remove one cause of fear, the premature beats. But we must remember that, in cases such as have been disucssed in this paper, the whole trouble—the dyspnea; rapid, irritable heart; weakness and exhaustion; the cold hands and feet; and even the cardiac pain simulating angina pectoris—is due to the defensive mechanism brought into play by the sympathetic system and primarily aroused by the emotions. The moment that we get rid of fear the patient is cured.

CASE OF MASTOIDITIS, MENINGITIS AND BRAIN ABSCESS (CASE REPORT)

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Phoenix, Ariz.

(Present at the Staff Meeting of St. Joseph's Hospital, Phoenix, Nov. 10, 1930.)

Male, aged 21, admitted to St. Joseph's Hospital for the first time February 6, 1930, for operation on account of a subacute mastoiditis. A semiradical mastoid operation was done at this time. As hearing was reduced to the minimal, and on account of certain pathological characteristics of chronicity disclosed previous to and at the time of operation, the patient was advised to have a radical. However, since he was very desirous of maintaining even a very small amount of hearing, a compromise procedure was agreed to and the above described operation was done.

The cortex was found to be very much thickened. The mastoid was mostly of the sclerotic type, with few pneumatic cells. Bone necrosis was encountered in both the superficial and deeper mastoid areas. The antrum was located high and deep in the mastoid structure. I refer to these pathological characteristics in order to clarify the subsequent course of this case. The above findings are prima facie evidence of chronicity and are very frequently the forerunners of grave sequelae. It might be added that the patient had an abscess in the right middle ear when a child of two years. He had a similar attack of otitis media in the same ear, for which I treated him, two years ago.

Following the mastoid operation, for a month after patient left hospital, the middle ear was dry and the postauricular wound was making a satisfactory healing. There reoccurred, however, some discharge from the middle ear. On April 26, 1930, he came to the office complaining of a very severe headache. The cerebral pains were not referred to any definite locality but were more or less generalized. The head pains became more and more aggravated and he was readmitted to St. Joseph's Hospital on April 28th.

Examination: Patient was extremely ill and restless and complained of severe pain in parietal and occipital regions. Pupils reacted to light and accommodaton. He was very much nauseated and vomited frequently. Ophthalmoscopic examination was negative at this time. General physical condition revealed no other abnormalities.

There was a small amount of non-pulsating discharge coming from a medium-sized perforation of right drumhead in its lower anterior quadrant. The operative wound showed some drainage following probing as far as the antral cavity. The culture taken from aural secretion showed the offending organisms to be streptococcus and staphylococcus. Temperature was 103.8. Pulse 90. Respiration 20. The temperature ranged, in the early part of his present illness, from 100 to 102.3 and pulse 80 to 90.

Laboratory examination: The urine showed a trace of albumin and a few pus cells. Spinal puncture was done immediately after admission. It was found to be under increased pressure, contained 760 cells per cubic centimeter and showed a hemolytic streptococcus. Spinal punctures were done about every other day as cerebral symptoms indicated.

On May 2nd, the fifth day after admission to hospital, the spinal fluid was found to be under greatly increased pressure and contained 1700 cells per cubic centimeter. The blood picture was not in keeping with the severity of the illness except that, on the 29th, his third day in the hospital, the leukocytes reached 19,400 with 87 per cent polys. On the second of May, the fifth day in the hospital, the leukocyte count was 14,800, with 86 per cent polys. Hemoglobin 80 per cent. Other counts recorded showed a lower leukocytosis but an increase in polys.

Dr. Kingsley, who acted as neurological consultant, concurred in the diagnosis of septic meningitis and it was thought wise first to combat the meningeal involvement, hoping thereby that a localization of a probable abscess might ensue. A blood transfusion was given the patient on the day of admission and another on the fifth day. The second donor had been immunized with an autogenous vaccine made from the spinal fluid of the patient. The vaccine contained hemolytic streptococcus. A polyvalent streptococcus serum was injected into the spinal canal after removal of fluid.

The condition of patient remained practically unchanged until May 7th, which was his tenth day in the hospital. At this time, examination showed that the right pupil was still larger than the left. However, both pupils reacted to light and accommodation. There was a slight amount of neck rigidity remaining. There were no pathological reflexes present and the Kernig's sign was much less marked. The temperature, until following the operation, ranged from normal to 100.8. Pulse dropped to 70.

Ophthalmoscopic examination: Right eye dis-

closed a grayish hue to optic nerve along the temporal border. There were no abnormal findings in the left eye. Patient complained of a diplopia. The diplopia was accounted for by paresis of the third nerve; and an involvement of the contracting fibers of this same nerve probably explains the persistent mydriasis. Patient steadily improved from this time, except for a very slight temperature. The discharge from middle ear remained about the same. On the 13th of May all reflexes were reestablished to normal. The general condition of patient was satisfactory. The spinal fluid cell count had dropped to 50 cells per cubic centimeter and there had been an absence of pathological organisms for several days.

The second operation was done on the 14th of May. After making skin opening, the previously operated cavity was found to be clean. However, on extending incision down to the middle ear and the aditus ad antrum, these cavities were found to contain considerable necrotic tissue. The ossicles were destroyed with the exception of the head of the malleus, which was bound down by the dense adhesions. Just posterior and internal to the inner border of the fallopian canal, was found a dehiscence in the roof of mastoid antrum, 3 by 2 millimeters in area. An exposed necrotic dura enmeshed in granulation was present. After probing of this area, a few drops of pus exuded. The radical mastoid operation was completed. No flaps were made and wound left wide open. Cigaret drain and iodoform gauze were inserted into operated cavity. From this time on, except for slight nausea and headache, patient made an uneventful recovery.

The bifocal vision due to third nerve involvement gradually subsided and the dilated pupil became normal in size. Another spinal puncture, done on the 16th day of May, three days following operation, showed the fluid to contain only 30 cells to a cubic centimeter. Another transfusion was done at this time, using an immunized donor. Before the patient left hospital I closed the operated wound with plastic flaps. The middle ear drainage gradually subsided and the ear was dry when epidermization was complete.

In commenting upon this case, there was manifestly a latent hemolytic streptococcus infection in the deeper recesses of mastoid. This was undoubtedly present for an indefinite period. This organism gradually eroded the bony covering of the temporal lobe, exposing dura and finally producing an intrameningeal abscess. When patient was admitted to the hospital, the abscess had advanced far enough to rupture into the cerebrospinal circulation, which was evidenced by the presence of a purulent meningitis. An immediate operation at this time might have resulted disastrously.

Spinal fluid drainage and blood transfusion were very important factors in minimizing the meningeal symptoms as well as localizing the infective focus. The use of blood from an immunized donor, or one recently recovering from a hemolytic streptococcus infection, is, I believe, a valuable adjunct in the treatment of this type of disease.

DISCUSSION

DR. SCHWARTZ: Statistics show about 80 per cent of brain abscesses are caused by infection from the middle ear and mastoid process. It is for this reason these cases are frequently seen by the otologist.

A common route of infection is by way of the thin plate of bone that separates the middle ear and mastoid antrum from the inside of the cranium. The infection may travel through the various channels, especially the diploic veins. The perivascular spaces are another frequent avenue of infection into the cerebral substance. Infective infarcts occur occasionally. They may or may not develop into a brain abscess. Some cases with obscure symptoms, that get well, can be explained by these infarcts. The abscess may be extradural or intradural.

Extradural abscesses are commonly located beneath the temporal bone over the roof of the antrum, or in the posterior fossa in the region of the sigmoid sinus.

Intradural abscesses have two sites of predilection in the temproal lobe and cerebellum. In Korner's series, 63 per cent occurred in the temporal lobe, and 31 per cent in the cerebellum.

The most characteristic symptoms are often entirely lacking. Before operation the symptoms may be masked by middle ear suppuration. The patient appears sick and has a mask-like facial expression. Headache is probably the most constant symptom. The pain is dependent upon the amount of intracranial pressure. As the intracranial pressure increases, the pain becomes more severe. Vomiting should arouse suspicion of an intracranial lesion., particularly abscess. The mentality is dull, and reasoning becomes slow and difficult. With increase of intracranial pressure, we shall have the characteristic symptoms of vomiting, pain, choked discs, and slow pulse. These symptoms are more common in brain tumor. Indentation of the visual fields is characteristic and the fields should be taken daily for any change. The field changes are due to the edema which accompanies the abscess. Nystagmus occurs in an involvement of the labyrinth or brain. Abscess in the functional areas gives rise to symptoms of definite localizing value. There are vast silent areas that may harbor extensive lesions without giving rise to any localizing symptoms.

When the abscess is suspected in the posterior fossa of midbrain, a lumbar puncture is not advisable. The patient might suddenly stop breathing. As a rule, the number of cells in the spinal fluid is increased. The treatment is entirely surgical. If a mastoid operation has been done, the pathological changes revealed may suggest what to do or where to go. It is well to become familiar with and follow the refined technic of the neurosurgeon. A timely operation and good technic may save a life.

The prognosis is always grave. The percentage of recovery is comparatively small.

In this particular case, Dr. McLoone is to be congratulated upon the excellent result obtained.

FRACTURE OF RIGHT FEMUR WITH SEPARATION OF THE LOWER EPIPHYSIS (CASE REPORT)

J. M. GREER, M.D.
Phoenix, Ariz.

(Discussed at the Staff Meeting of St. Joseph's Hospital, Phoenix, Nov. 10, 1930).

The patient, a schoolboy aged twelve, was brought into St. Joseph's Hospital on Sept. 8, 1929, with a fracture of the lower third of the right femur, a puncture wound of the right knee, which was draining synovial fluid. This condition followed an automobile accident which occurred on September 1st near Winslow, Arizona. The car in which

the boy was a passenger, and which was said to have been going about eighty miles per hour, turned over three times, throwing the occupants out, and this boy was thrown into a pool of water which covered him entirely. Had it not been for the immediate aid of passers-by he would have been drowned.

He was taken, with the rest of the passengers, to a doctor's office, was placed on the floor and later, when he revived somewhat, was placed in a chair. When the doctor came in he noticed the boy slumping down in the chair and his leg, instead of being in front of him, was around back of the chair legs. It was not until then that they were aware that the boy's leg was broken.

Physical Examination: Boy, aged twelve, lying on a board splint, which held the right hip, thigh and leg in good alignment. There was marked swelling of the right thigh and knee, with marked discoloration and ecchymosis and puncture wound of the right knee, from which was exuding a fluid resembling synovial fluid. The general examination was essentially negative except that the pulse was rather rapid and the boy looked tired from his trip. There was a pustular eruption on his face and hands—probably an impetigo.

The patient was placed in a Thomas Splint with a Pearson attachment and the thigh and leg suspended, with the knee in a flexed position.

X-ray, Sept. 10, 1929, showed wide separation of the fragments of the femur, and the proximal fragment internal and anterior to the distal one. There was also separation in the epiphyseal line of the femur, with some displacement of the fragment.

Sept. 11, Dr. Palmer saw the case in consultation and it was decided to do an open reduction, as it did not seem possible to reduce the femur by the closed method as this had been diligently tried in Winslow. Because of the condition of the patient, it was decided to wait a few days for him to recuperate somewhat.

Sept. 16, open reduction was done. There was a large amount of clotted blood found about the ends of the fragments with considerable laceration of the soft parts and the muscle tissue between the fragments, which prevented the reduction by the closed method. The fracture being only slightly oblique and with rough ends, it was decided to place the fragments end on and not put in any internal fixation, because of the hematoma and the marked contusion of soft tissues. The case was put in a cast from toes to rib margins and to the knee of the left side.

Oct. 8, x-ray showed fragments in apposition but with external bowing at the point of fracture. There was definite hard callus along the inner side of the fracture.

Oct. 9, patient was taken out of the cast and put up in traction abduction.

Oct. 10, under gas anesthesia, the bowing of the femur was straightened out and the thigh and leg left in traction abduction. It was thought that it would be possible to hold the fragments inward with the application of Pearson pads. This method was tried for some time but without very much success. The wound opened and a superficial infection developed, probably from the skin infection that the patient had. The continual adjustment of the pads kept continued movement in the fragments and the union did not become firm.

October 29, there is another x-ray report and a "dirty dig" from a radiologist who signs himself "W.W.W.": "We have tried to secure the desired information on this patient by means of a lateral projection taken with stereoscopy. The only thing that we are able to determine is that the alignment is good. Bone detail is obscured by splint and we are unable to get at the patient in a position which would permit anteroposterior view. Some other arrangements will need to be made before we can secure roentgenograms of this patient in the location and with the scaffolding which he has around him at the present time."

We decided to treat the case as best we could until the infection cleared enough to be safe to put in a Steinman nail and, by means of skeletal traction, to get a better alignment. We could not get traction enough, even with the knee flexed, to overcome the bowing because of the separation of the lower epiphysis.

Nov. 30, x-ray roentgenograms of the right femur, taken with portable machine, show the fracture in the middle portion of the bone with considerable outward angulation; fragments of the bone apparently in good position, and there is evidence of bony callus being deposited, although the point of fracture is overlapped with the rubber pressure pads. There is also fracture at the epiphyseal line which shows some increase in density of the distal end of the shaft, probably representing attempt at healing.

Here, again, we did not get the information we wanted, the rubber pads being in the way. However, there was not union as there was mobility at the site of fracture.

Dec. 9, 1929. Although the infection was not entirely cleared up we decided not to wait longer, and put a Steinman nail in the lower end of the femur above the epiphyseal line, put on fifteen pounds weight, and in a short time began to move the knee.

Dec. 30, 1929: Roentgenograms of this patient's thigh and knee, taken with the mobile x-ray unit, show good position and alignment, with extensive callus formation along the internal and posterior aspect of the bone, extending well above and well below the fracture of the femur. There is evidence of union at the piphyseal line.

Jan. 18, 1930, the Steinman nail was removed.

Jan. 26, the leg was taken out of the splint.

Jan. 29, the patient was up in a wheel chair.

Feb. 24, 1930, patient was discharged. Union firm, slight angulation at the knee. April 1, patient was bearing some weight but the knee could not be extended to the normal potition. May 1, patient was walking without crutches, knee almost straight.

Aug. 1, 1930, patient walking without limp but slight knock knee.

CASE REPORT.

F. C. JORDAN, M. D.
Phoenix, Ariz.

(Presented at the Staff Meeting of St. Joseph's Hospital, Phoenix, Dec. 8, 1930).

Male infant, born in St. Joseph's Hospital, September 18th, and died October 8th. Family history negative; father and mother both well. Wassermann on mother's blood was negative. No brothers nor sisters. One brother died last year at age of three days. (Death was due to enlarged thymus. X-ray showed large thymus. One x-ray treatment was given. Baby became cyanosed and died in cyanotic attack.) Record states that this second baby was a normal delivery but that the baby was covered with pustules at birth. These lesions seemed to improve. The baby nursed well and by the sixth day had re-

gained its birth weight. On the sixth day it was noticed that the left breast was swollen and red. This was opened by the physician and a bloody purulent fluid escaped. Culture of this fluid showed staphylococcus aureus. The temperature ranged from 99 to 100.8 degrees. At this time, the skin eruption on the body had cleared up except upon the buttocks. The drainage in the breast gradually became less and had ceased, but the breast was still swollen and red. The baby left the hospital on the 13th day, apparently in fairly good condition, although it was still 3½ ounces under its birth weight. The baby seemed to be doing well at home until the third day, when it commenced to cry, especially when the head was moved. It cried as if in severe pain. There was some edema and tenderness over the occipital region. This swelling rapidly involved the entire scalp, and the baby was taken back to the hospital. Consultation advised reopening of abscess in the breast; also, that erysipelas antitoxin be given and free opening of any other abscess which should occur. There was a questionable fluctuation in the occipital temporal region. Three doses of erysipelas antitoxin were given at twelve-hour intervals, with no apparent improvement. The following day, there was a distinct fluctuation in the left occipital temporal region. This was freely opened and a large amount of thin bloody sero-purulent secretion escaped. This was cultured, as well as the purulent fluid from the breast. Both showed staphylococcus. A hard indurated cellulitis developed on both sides of the neck, extending around in front, completely surrounding the neck girdle. There were no definite fluctuating areas. One area seemed a little softer and was incised, but only a small amount of serous fluid escaped. The baby commenced to have clonic convulsive seizures. Spinal puncture showed a clear fluid with some increase in pressure. There were four cells and no organisms were found. These convulsions became more frequent and the babe died on the fifth day of his second admittance to the hospital. An attempt was made immediately after death to obtain a specimen of heart blood for culture. This was unsuccessful but a clear paricardial fluid was obtained, which contained no organisms.

The autopsy report was as follows: The body is that of a male babe showing evidence of a large abscess involving the left breast, which has been opened by incision, and another abscess under the left ear, which has been incised, and a large area of induration below the right ear extending over the right side of the neck. There is a thickening and induration of the scalp. The left lung was removed. There was a small amount of pleural fluid present. The lower lobe showed passive hyperemic—right lung very dark in color—lower lobe increased in volume and of firm consistency, evidently a pneumonic consolidation. There is one large dark area with a gray striation just beneath the pleura. The thymus shows moderate enlargement, with slight excess of pericardial fluid. Heart is normal in size. The valve leaflets, both tricuspid and mitral, show reddening and a slight irregular roughened appearance, mostly representing an early endocarditis. The liver and spleen were normal. Left kidney pelvis is enlarged with narrowing of the cortex of the kidney, representing a slight degree of hydronephrosis. Sections of lower lobe of right lung show complete consolidation. The air vessels filled with blood cells and inflammatory exudate: pus cells and edema with multiple miliary lesions of necrosis. Septic pneumonia. Examination of the left ureter shows almost complete obstruction of the lumen at its junction with the bladder. Apparently congenital narrowing and is the cause of the hydronephrosis of the kidney.

Anatomical Diagnosis: Septic pneumonia; erysipelas of scalp; cellulitis of both sides of neck; abscess, left breast; possible early endocarditis.

The septic pneumonia which was found at the autopsy might have been an insufflation process, as the baby expectorated similar bloody purulent material. It is possible that the marked cellulitis of the neck might have been discharging somewhere in the throat. New-born infants bear infections very poorly. For that reason, our nurseries are extremely careful to protect the babies from colds, skin infections and other contagious diseases, for, not uncommonly these terminate fatally. It would seem that this was a blood-borne infection. Just where the staphylococcus first gained entrance is problematical. The septic pneumonia, beginning endocarditis, widely separated absceses, would warrant a diagnosis of septicemia, without a positive blood culture.

ENURESIS

Review of Current Literature

O. H. BROWN, Phoenix, Ariz.

(Continued from December Issue)

J. Jacobavici, C. I. Urechia and E. Tepasu[35] report 19 cases of urinary incontinence and nocturnal enuresis, in which the finding was made in 16 of occult spina bifida. Operation was done on this group with good results. They say education should first be attempted especially in the mentally deficient, and where this fails a large per cent should be operated upon.

G. J. Mohr and E. H. Waterhouse[36] found the causes of enuresis in 15 children to be poor training, emotional factors, physical factors, suggestion and fatigue. They conclude that a neurosis is frequently a fundamental condition. The treatment must be based upon the etiologic factors and must be highly individualistic.

Wm. S. Ezickson[37] had two serious cases of enuresis, one in a boy six, with a duration fo two years and the other a boy eight and a half with enuresis since babyhood. The first case was found to have a calon bacillus infection of the urine with a large amount of pus. A vaccine was prepared and administered; the child's urine gradually cleared of pus and after about two months there was no more enuresis; the other case was found to have occult spina bifida. Treatment of this was not permitted.

Lemoine[38] had one case of urinary incontinence associated with fecal incontinence as a result of meningeal cyst of the lumbar region. Diagnosis was made by iodized oil and x-ray. Removal effected cure.

Arthur I. Blau[39] studied 90 cases of enuresis. Thirty-eight cases were of ages four to six, 28 were over 10 years. Forty-one were male and 49 female. Two of the cases were diurnal in type, 69 were nocturnal and 19 were both diurnal and nocturnal. There were a variety of findings such as enlarged tonsils, adenoids, anemia, caries, malnutrition, phimosis and bronchitis, but correction of the abnormalities were without great benefit. The duration of enuresis before treatment was instituted, was less than one year in 10 cases, less than two in 28 cases, and over two years in 37 cases.

W. Howell[40] says the bladders of children are sen-

sitive to reflex stimuli, local irritation and sensory stimuli of various sorts, various psychic acts are prone to cause a contraction of the bladder.

A. Friedell[41] has had three cases of enuresis in which there was reversal of the day and night specific gravity of the urine, and hence with undue nocturia.

S. A. Moss[42] says enuresis may result from reflexes caused by local irritation from phimosis, adherent foreskin of clitoris, balanitis, epispadis, hypospadis, vaginitis, renal or vesical calculi, pyelitis, cystitis, tuberculosis of the genital tract, pinworms, lack of cleanliness, skin diseases of external genitals, etc. He also says masturbation, spina bifida, myelitis and nocturnal epilepsy may be causative factors.

Pfister[43] says that the type of nocturnal enuresis which is the result of epilepsy occurs relatively infrequently.

E. Pototsky[44] thinks enuresis occurs especially in the psychopathic children and divides them into four groups, the obstinate children whose lack of inhibition is due to desire to annoy the parents, the highly anxious children who have undue fear of punishment, the children with decreased capacity for attention and concentration and children excessively indifferent to all forms of impressions.

D. Patterson[45] found that 75 of his cases had undue frequency of urination and hence tended to evacuate the bladder at the slightest provocation.

Pierre Delbet and Andre Leri[46] have operated upon occult spina bifida in several cases of enuresis, and effected prompt cures.

F. O. Pybus[47] says enuresis has been a common symptom in cases of spina bifida which he has seen.

J. S. Leopold[48] had a girl age six with spina bifida and enuresis in which operation of the spina bifida cured the anuresis.

C. Beck[49], Von Recklinghausen[50], Mr. Barst[51], F. Hesse[52], and J. Van Finck[53] have written extensively upon spina bifida and enuresis.

Maurice Ostheimer and I. V. Levi[54] claimed that 80 per cent of their cases of enuresis were benefited by the use of atropin used to the point of toleration.

Knotz[55] recommends a vegetable diet for enuritic children because by it a large amount of the water of the body is carried off by the bowel; he restricts the fluids after 4 p. m. and raises the foot of the bed and endeavors to make the child sleep upon his side, tying a brush to the child's back if necessary, to make him uncomfortable if he gets onto his back. He says most of enuretics are excessively heavy sleepers and need to be waked up at intervals during the night. He recommends a two-hour sleep for morning and for afternoon.

Lewis[56] advises putting the patients on a strict anti-diabetic diet; his results have often been excellent from this regime. He also uses tonics.

A. Collin[57] finds enuresis is sometimes a result of digestive disorders often from over eating. He advises mild laxatives, restriction of diet, hot compresses and light massage to abdomen.

Klotz[58] prescribes cold douches to the anal and perineal region in a specially built chair.

Cipriati[59] recommends the diathermic current.

Baruch[60], Watson[61], and others testify to the value of belladonna.

Fleischner[62] uses belladonna in suppositories.

J. Allan[63] says there are two varieties of enuresis, the atonic and that characterized by vesical irritability. In the vesical irritability type belladonna is highly useful, and should be used until there is dryness of the mouth, mydriasis, disturbances of vision, etc.; for a child five years of age 10 minims of tincture of belladonna may be given three times daily and increased two minims every few days, until tolerance is determined.

Simpson[64] has used tincture of belladonna three times daily in doses as large as 20 to 25 minims. He advises neutralization of hyperacid or strongly alkaline urines, thinks strychnine may be a serviceable tonic and has used belladonna; if infection is found in the urine it should be eliminated.

Herman[65] had his patients urinate at regular stated intervals, interrupting the streams every little while until the bladders were empty. This was done for the purpose of developing a conscious control of the bladder evacuations. It should be done at first under supervision of the physician.

Haven[66] cured two 18 year old girls by gradually distending every other day their bladders with four per cent boric acid solutions. The bladders in both cases were abnormally small.

Sir Henry Thompson[67] instils silver nitrate solution into the posterior urethra and claims it is beneficial if used in a strength to produce smarting.

J. Wilson White and Edward Morton[68] say that nocturnal enuresis of the type due to carelessness or laziness can often be successfully treated by awakening the children each night an hour or so in advance of the time they are likely to void in bed.

Wachenheim[69] treats enuresis as a "tic convulsif;" i. e. the child must urinate at regular intervals during both day and night. When this does not cure he cuts off all late afternoon and evening fluids and reduces the evening meal. He thinks atropin may be beneficial as may tonics, removal of adenoids and tonsils, etc.

Freyberger[97] advises a regulation of the diet, sleeping on a hard mattress, light coverings, cold sponging along the spine and taking the children up once or twice during the night to pass urine.

Valentine and Townsend[71] used Fernand Cathelin's method of injecting 10 c.c. of saline solution into the "sacral canal between the periosteum of the vertebrae and the dura mater." The patient is placed in Sims' position and by using the last palpable spinous processes of the sacrum the needle is introduced into the sacral canal.

Jabouilay[72] obtained favorable results in several cases by retrocecal injections of sterile saline injections. Several injections were often necessary.

Allaria[73] applied Cathelin's method of epidural saline solution injections into the sacral canal in 22 cases and obtained good results in about half the cases, all he thinks entirely from suggestion.

Cahier[74] injected 60 to 70 c.c. saline solution subcutaneously into the anterior perineum to make a swelling the size of an egg with slight pain and obtained satisfactory results.

G. Sisto[75] had excellent result in a child 14 years old, afflicted with enuresis all of his life, by Cathelin's epidural injection of saline solution.

Zanoni[76] treated 134 cases of enuresis with suprarenal gland substance and cured 66 cases, improved 21; 14 were better during the period of treatment; 21 were unchanged. He thinks the treatment was not continued a sufficient length of time in his failures.

Hertoghe[77] says nocturnal incontinence is due to thyroid insufficiency and a per cent of his cases were benefited by administration of thyroid extract. He also gave potassium iodide and bromide.

Leonard Williams[78] cured 25 cases by giving them small doses of thyroid extract. He says it is extremely important not to give large doses as such may cause enuresis.

Fleischner[79] treated ten patients with thyroid ex-

tract, cutting out fluids after four p. m. and elevating the foot of the bed. Eight were improved and in four of them circumcision had previously been done without benefit.

McCready[50] recommends supervision of the child's exercise, diet, and bathing, and guarding against physical or mental strain. He also gives thyroid extract.

A. C. D. Firth[51] treated 28 cases with thyroid extract and obtained cures or marked improvement in 16.

John Rehrah[52] reports that of 716 cases of adenoids operated by Fisher, 14.9 per cent had enuresis; that Mygino found enuresis in 7.75 per cent in 500 cases and Gruback 14.28 per cent in 427 cases; he also says Hamonic circumcised 187 cases of incontinence with cure of 130. He has used thyroid extract, fluid extract of ergot and atropin with good results.

Samway [53] claims good results from painting collodion over the outlet of the urethra. The heightened intraurethral pressure awakened the child.

Gersung[54] injected paraffin along a relaxed urethra, especially for atonic sphincters.

Semb[55] reports that the outcome in one of the cases treated by Gersung by paraffin injections along the urethra and in another treated by him was good years afterwards. In one case the urethra had been lacerated by childbirth and repeated operations had failed to effect a cure.

Fabre and Trillat[56] injected solid paraffin for severe incontinence due to trauma of the urethra, with perfect results.

E. H. Eising[57] treated two cases of intractable incontinence with paraffin injections along the urethra[66]—one injection in one case and three in the other—with cures.

Robt. K. Rewald[58] reports that his cases of enuresis were otherwise healthy, well-nourished and intelligent and but few were neurotic. He stresses another point, which many authors mention, that the physician should have the full cooperation of the child and his parents in treating enuresis. He uses general measures, drugs and suggestion in treatment. His general measures are, limited fluid after 4 p. m., evacuation of bladder just before retiring, getting the child up and awake at intervals through the night, and compelling him to walk to the bath room. In drugs he has no confidence, except in atropin. This he uses in a 1-1000 solution in ascending doses to the point of tolerance; for the diurnal and nocturnal type he gives doses at 10 a. m. and three and seven p. m. For the nocturnal type doses at 10 a. m. and three and seven p. m. The first dose is one drop and this is increased daily until short of the point of tolerance. The maximum dose is maintained for a period of from two to six weeks and these gradually reduced. He admits that psychiatrists scoff at the value of atropin but he is thoroughly convinced that it is of much help; in cerain cases which were doing well under the atropin he substituted water and the cases promptly relapsed; they improved again as soon as the atropin was resumed. He repeats the course of treatment whenever necessary. One case was treated ten times in four years before a permanent cure was effected. He approves of suggestive therapeutics.

Bronson Crothers[59] tells the enuretic that he can stop his bed wetting if he wishes to and each specific case is told that he must wash the bed clothes each morning after they had been soiled. He has the mother promise the child 25 cents for each night in which he remains dry for the first month and a dollar a week thereafter for a time. One child fell from grace twice the first week and once the second and has been dry ever since.

L. Coffe, Bainglas and Comsa[90] report the use intravavenously of methenamine in a group of cases with involuntary micturition from a variety of causes, with satisfactory results in a small per cent of the cases.

Francis B. Jacobs[91] uses pituitrin as a routine measure in enuresis. He treated 50 cases; 17 were cured; 17 were geratly benefited; 16 were not benefited.

Harry Lowenburg[92] admonishes physicians against promising their patients that removal of tonsils, adenoids, and correcting other abnormalities by surgery will cure enuresis.

A. R. Thompson[93] recommended stretching the bladder with a 75 c.c. column of salt solution but the method has not stood the test of time.

C. Bruns[94], F. Korats[95], Gallaria[96], and P. Mueller[97] have demonstrated to their satisfaction that psychotherapeutic measures are fully as serviceable whether used without or with drugs or placebos.

Editor[98] recommends for the treatment of a man, age 25, who had suffered from bedwetting for six years, x-ray examination to discover if spina bifida exists and epidural injections of an indifferent fluid as sodium chloride to relieve enuresis.

H. Cramer[99] reports on Goebell's operation for enuresis, and says his results have been good. The upper part of the neck of the bladder are grasped from behind and pulled upward and forward by a loop which is fixed to the fascia of the anterior abdominal wall. The operation seems to be for those cases of enuresis due to local abnormality—usually lacerations.

G. Brown Miller[100] advises operation upon the urethra where incontinence is due to lacerations of the urethra, provided there is adequate tissue to offer hope of cure; where operation is futile paraffin injctions may give good results.

Caspar[101] advised cauterization in two or three deep grooves of the vesical sphincter through a vesical cystoscope with reasonable hope of cure.

H. A. Kelly[102] describes in detail an operation for repair of a lacerated bladder sphincter.

E. L. Young[103] gives the operative procedure for treatment of incontinence when associated with or dependent upon epispadial and other conditions.

Cumston[104] thinks there is virtue in the usual medical treatment of enuresis and especially recommends the instillation of a silver nitrate solution into the urethras.

W. E. Carter[105] approves of the recommendation of Sachs that treatment for enuresis is largely a matter of habit training.

A. Mattes[106] says from his studies the causes may be grouped under three heads: Psychic, neurogenic and mechanical. He says there may be a combination of any two or all three of these factors. For treatment he recommends, alkalinization of urine, reduction of fluid intake after 3 p. m., last meal never later than 5 p. m., no sweets nor pastries in afternoon, and voiding before retiring. If improvement is not prompt he prescribes sodium bromide and tincture hyoscyamus. If needed, he uses silver nitrate instillations, (two to six per cent), every second to fifth day, for about ten times to increase the tone of the vesical sphincter. The urethra may be advantageously dilated. He reports a series of 20 cases successfully treated.

J. R. Stamper[107] especially recommends early treatment, the use of thyroid in hypothyroid cases and the correction of whatever local pathology may be found.

H. W. E. Walther[108] advises the use of infant cys-

toscopes in order to properly make the diagnosis. A catherterized specimen of urine, specially in little girls, should always be studied. He advises the use of one holf to two per cent silver nitrate—one to two drams—instillations into the bladder.

Frank J. Chalaron[109] says he has seen obstinate cases of enuresis in soldiers or would-be soldiers in which all ordinary treatment had failed. He used treatment first recommended by Cathelin, consisting of epidural injection of 10 c.c. of a sodium chloride solution. In three men this method produced marvelously successful results. A young girl had to have two epidural injections to effect a cure.

Porter[110] uses a method suggested by F. L. Dunham which consists of a card on which are printed four lines as follows: "I will not wet the bed. I will wake up at 10 o'clock. I will get up and pass water. I will not wet the bed any more." These four lines are to be repeated ten times during a diurnal urination and again ten times just before going to bed. The child should be awakened at 10 o'clock if he does not awake of his own accord, and made to walk to the toilet and urinate. The mother has a blue card and red and gold stars. For each night successfully passed the child is allowed to paste a red star on the card and for each week a gold star. Allowing the child to report his success by telephone to his physician may be beneficial.

C. Wile[111] recommends the formation of classes of enuretics in dispensary practice so that all may be trained simultaneously.

Dunham[112] emphasizes the importance of having the child repeat sentences to the effect that he will not micturate in bed, etc.

Arthur I. Blau[113] says the drugs used in a series of cases were strychnine, ergot, atropin, belladonna, and many others, but the results were unsatisfactory. Pituitary extract was used both by mouth, and hypodermic. About 75 per cent of the cases treated with pituitary substance were cured.

Bonacarse[114] reports eight of 12 cases of enuresis treated with pituitary extract were cured and three others were greatly benfited. Atropin and massage of the bladder were the only measures that Adrien Bleye[115] found effective in the treatment of true enuresis. In the main however, bladder massage was effective only against diurnal enuresis.

I report from among a number that I have treated two cases of nocturnal enuresis in boys about 16 years of age; one was successfully treated by the administration of potassium bromide. There seemed to be no abnormality in this case except that the bladder muscles responded too readily to a full bladder. My idea in this treatment was that the bromide would lower the sensibility of the cord centers which respond to a full bladder by evacuating it so that the bladder might not empty itself before the child awakes in the morning.

The other case seemed to be one of a diabetes insipidus type. He was given pituitary extract and after several months' treatment obtained a cure.

The case that prompted this study of the literature seems to be a case with hypersensitive, untrained spinal cord, centers. He has not been improved by bromides and restriction of fluids of late afternoon and evenings. He has tried putting an alarm clock timed to go off to awaken him before emptying of bladder would occur but he sleeps through without hearing the clock. I have had him reduce his school work and take a two hour sleep each afternoon with the plan that he is to study till 10 each evening. He is to empty his bladder before going to bed. His metabolism test is normal and I have discovered no local abnormalities. I shall x-ray his back for occult spina bifida, and shall have him use mental therapy. I shall try atropin if the suggested methods fail.

It has seemed to me that protein sensitization reactions of the bladder might cause a hyperirritable bladder and hence be largely contributary to enuresis in certain cases.

SUMMARY

Enuresis is probably most commonly the result of inadequate training in bladder control. It would seem that the conscious centers have been at fault in not exerting sufficient inhibitory power to prevent evacuation, or more especially to overcome the thought of the desire to evacuate. There is little doubt but that certain bladders are never stretched to the same extent as are others. Heavy sleeping and fatigue seem to be responsible for nocturnal enuresis in a proportion of cases; laziness and not-caring may be factors in occasional cases. The lower cord centers may be hyper-irritable because of such abnormalities as occult spina bifida, tumors, etc.

The bladder and posterior urethra may be hypersensitive and the bladder muscle hypertonic, so that the desire to micturate is caused by even a small amount of urine in the bladder. The urethra and sphincter may be abnormal so that there is little or no possibility of normal control of the outlet of the bladder. There may be local infections and irritations of the genital tract rendering the bladder hyper-irritable. There may be abnormalities in the body elsewhere than in the genito-urinary system which may reflexly affect the bladder as its nervous control.

The treatment seems to be predominantly habit training and mainly by mental therapy. The patient must be told that he can stop his bed wetting if he tries hard enough, that success will come after a period of trying; he must determine that he will not sleep heavy and he must do everything possible to prevent excessive fatigue; he must determine that he will awaken when a desire to micturate becomes strong. If he will but analyze the problem thoroughly and use his will power to overcome it he will usually succeed. All and every method of treatment has an element of mental therapy in it. The enuritic child should not be allowed to become too much fatigued by day; morning and afternoon sleep periods may overcome too heavy sleeping at night. All inflammation and irritation in and about the genital tract should be given careful treatment. The use of bromides to dull the cord centers seems entirely logical. The administration of atropin to relax the involuntary muscle of the bladder also seems rational. I also can see no sensible objection to restriction of fluids in late afternoons and evening.

Pituitary, thyroid, suprarenal or other internal secretion extracts in cases where there are signs of hyperactivity of the respective glands seem to be logical therapy when used especially with the preceding suggestions. Pituitary extract particularly where a large amount of urine is being evacuated it seems should have curative possibilities. Likewise in appropriate cases an antidiabetic diet would seem rational. In cases where protein sensitization of the bladder or cord centers exists a careful regulation of the diet would certainly be indicated. It is always well I am sure, that enuritics should not eat excessively. Teaching the enuritic to control the premature desires to micturate and to stretch the bladder would seem to be a great benefit in certain cases. Operative procedure for an occult spina bifida should be undertaken when such condition is proven and all other methods have

failed to cure. Likewise operations on lacerated and traumatized sphincters are indicated when there is no hope from other procedures. In event of failure from operation there may be hope through paraffin injections along the urethra. Abnormalities such as tonsils, adenoids, and other diseased areas should be corrected but the procedure should not be held out as a cure for incontinence. The painting of collodion over the urethra outlet seems well worth trials. A string should not be placed about the penis is in one instance of which I read gangrene resulted. The instillation of silver nitrate into the bladder to the point of causing smarting on micturition might be worthy of trial as I am sure it might sometimes be counted upon to beat an alarm clock for awakening a person. I can see little if any excuse for epidural or perineal or retrocecal injections of saline. Last but not least parents should be educated to the understanding that children can be taught early in life to get control of bladder and intestinal evacuations. The early weeks of the child's life is none too early to begin the training process. The proverbial bedside pot has its place and should be used constantly. The child can early be made to feel that he has disgraced himself when he has soiled himself. The fault for enuresis is usually more in the parents than in the children.

REFERENCES

(1) Adrian Bleyer—Am. Jour. Dis. Child., 36: 989, Nov. 1928.

(2) Israel S. Wechler—Text Clin. Neurol., Saunders, 1927, p. 122, 141, 174, 187, 207, 212, 218, and 222.

(3) M. B. Wesson—Jour. Urol. 4: 279, 1920—Ref. from Bleyer—(No. 1).

(4) H. H. Young—Jour. Pharmacol., 12: 329, 1923,—Ref. from Bleyer, (No. 1).

(5) D. I. Macht—Jour. Pharmacol., 8: 111, 1916—Ref. from Bleyer (No. 1).

(6) Chetwood—Pract. of Neurol. 1921—Ref. from Mitchell (No. 8).

(7) H. H. Young—Surg. Gyn. Obs. 26: 608, 1918—Ref. from Rewalt—Penn. Med. Jour., 33: 387, Mch. 1920.

(8) John McR. Mitchell—Atlantic Med. Jour., 31: 469. Apr. 1928.

(9) Grover— Jour. Am. Med. Assoc., 71: 626. 1918.

(10) Theodore H. Weisenburg—Jour. Am. Med. Assoc., 93: 377. Aug. 3, 1929.

(11) Ralph C. Hamill—Jour. Am. Med. Assoc., 93: 254. July 27, 1929.

(12) K. M. Horton—Archiv. Dis. Childhood, London, 4, Apr. 1929.

(13) Basil A. Hayes—Jour. Okla. State Med. Assoc., 22: 412. Dec., 1929.

(14) P. J. Crozier Griffith and A. Graeme Mitchell—The Diseases of Infants and Children, Saunders, 1927, p. 477.

(15) Langley Porter and Wm. E. Carter—Management of the Sick Infant, Mosby, 1927, p. 383.

(16) Lewis H. Adler Jr.—Sajous's Cyclopedia Pract. Med., F. A. Davis Co., 1913, p. 516.

(17) McKee—Ref. from Adler (No. 16) p. 516.

(18) Rachford—Ref. from Adler (No. 16) p. 516.

(19) Nocoletopoulos—Arch. de Med. des. enfants, Sept. 1910—Ref. from Adler (No. 16) p. 517.

(20) Leonard Williams— Adenoids, Nocturnal Enuresis, and The Tthyroid Gland, 1909—Ref. from Adler (No. 16) p. 517.

(21) Ozerezkowski—Ref. from Adler (No. 16) p. 517.

(22) Wachenstein —N. Y. Med. Jour. Feb. 5, 1910—from Adler (No. 16) p. 517.

(23) Monro—Ref. from Adler (No. 16) p. 517.

(24) Thiemich—Berl. Clin. Woch., July 30, 1901—Ref. from Adler (No. 16) p. 518.

(25) Fuchs—Deut. Med. Woch., July, 6, 1911—Ref. from Adler (No. 16) p. 518.

(26) Constantiesco—Jour. d'Urol., May, 1912.—Ref. from Adler (No. 16) p. 518.

(27) Robson—Ref. from Adler (No. 16) p. 518.

(28) Beilby— Am. Med. Mch. 5, 1904—Ref. from Adler (No. 16) p. 518.

(29) C. E. McGirk—Sug. Gyn. Obst. Nov. 1907—Ref. friom Adler (No. 16) p. 519.

(30) J. Allan—Prescriber. Aug. 1912.— Ref. from Adler (No. 16) p. 519.

(31) Koplik—Dis. Childhood and Infancy, 1918—Ref. from Mattes—New Orleans Med. and Surg. Jour. 80: 310. Nov., 1927.

(32) Holt—Diseases of Infancy and Childhood.

(33) Editor—Jour. Am. Med. Assoc., 93: 1494, Nov. 9, 1829.

(34) Isaac A. Abt., Herman M. Adler and Phyllis Bartelme—Jour. Am. Med. Assoc., 93: 1351. Nov. 2, 1929.

(35) J. Jacobavici, C. I. Urechia and E. Tepasu—Presse Medicale, 37: 1103. Aug. 24, 1929. Ab. J. A. M. A. 93: 1342. Oct. 26, 1929.

(36) G. J. Mohr and E. H. Waterhouse—Am. Jour. Dis. Child., 37: 1135, June, 1929.

(37) Wm. S. Ezickson— Med. Jour. and Rec., Oct. 20, 1926, p. 493.

(38) Lemoine—Jour. de chir. etc., Brassels, 27: 198. Apr. 1928. Ab. J. A. M. A., 92: 596. Feb. 16, 1929.

(39) Arthur I. Blau—Med. Jour. and Rec., 1924, Oct. 20, 1926, p. 492.

(40) W. Howell—Text book of Physiol. Philadelphia, 1915.

(41) A. Friedell—Ref. from Mitchell (No. 8).

(42) S. A. Moss—Med. Jour. and Rec., 121, 1925—Ref. from Mitchell (No. 8).

43) Pfister—Monatschr, f. Phychiat u. Neurol. 15, 1905, p. 113—Ref. from Griffith and Mitchell (No. 14).

(44) E. Potosky—Ztschr. f. Kinderh., 37, 1924.—Ref. from Mitchell (No. 8).

(45) D. Patterson—Practitioner, 116, 418, 1926—Ref. from Mitchell (No. 8).

(46) Pierre Delbet and Andre Leri—Bulll. et Mem. de la Soc. Med. d. Hop. d. Par. 39, 1923, p. 105—Ref. from Ezickson (No. 37).

(47) F. O. Pybus—Lancet, London, 11, 1921, p. 599—Ref. from Ezickson (No. 37).

(48) J. S. Leopold—Jour. Am. Med. Assoc., 74: 439, 1920.

(49) O. Beck—Ergebn. d. Chir. u. Orthop., 15, 1922—Ref. from Ezickson (No. 37).

(50) Von Recklinghausen — Virchow's Archiv., 105: 243, 1886. Ref. from Ezickson (No. 37).

(51) M. Barst— Ergebn d. Chir. d. allgem. Pathol. Anat., 9: 468, 1904.—Ref. from Ezickson (No. 37).

(52) F. Hesse—Ergebn d. Chir. u. Orthop., 1918—Ref. from Ezickson (No. 37).

(53) J. Van Finck—Ztschr. f. Orthop. Chir., 42: 65, 1921.—Ref. from Ezickson (No. 37).

(54) Maurice Ostheimer and I. V. Levi—Jour. Am. Med. Assoc., 43: 1844, Dec. 17, 1914.

(55) Klotz—Dentsch Med. Woch., Dec. 5, 1912,—Ref. from Adler (No. 16).

(56) Lewis—Brit. Med. Jour.—Med. Review of Reviews, Sept. 1912—Ref. from Adler (No. 16).

(57) A. Collin—Jour. d. Urol. Jan. 1913—Ref. from Adler (No. 16).

(58) Klotz— Berl. clin. Woch., May 1, 1911 — Ref. from Adler (No. 16).

(59) Cipriati—Ref. from Adler (No. 16).
(60) Baruch—Ref. from Adler (No. 16).
(61) Watson—Ref. from Adler (No. 16).
(62) Fleischner—Calif. State Med. Jour., Feb. 1911—Ref. from Adler (No. 16).
(63) J. Allan—Prescriber, Aug. 1912—Ref. from Adler (No. 16).
(64) Simpson—Edinburgh Med. Jour. Jan. 1913—Ref. from Adler (No. 16).
(65) Herman—Archi. of Ped., Aug. 1910—Ref. from Adler (No. 16).
(66) Haven—Ref. from Adler (No. 16).
(67) Sir Henry Thompson— Ref. from Adler (No. 16).
(68) J. Wm. White and Edward Morton —Ref. from Adler (No. 16).
(69) Wachenheim—N. Y. Med. Jour., Feb. 5, 1910—Ref. from Adler (No. 16).
(70) Freyderger—Ref. from Adler (No. 16).
(71) Valentine and Townsend—Med. Rec., Sept. 26, 1903—Ref. from Adler (No. 16).
(72) Jabouilay—Tribune Med., 41, 1908, p. 202—Ref from Adler (No. 16).
(73) Allaria—Ga. Degli. Ospedali, Apr. 27, 1909—Ref from Adler (No. 16).
(74) Cahier—Arch. de. Med. et de Pharm. militaires, June 1909,—Ref. from Adler (No. 16).
(75) G. Sisto—Arnolds de med. et de chir. enfants, Mch. 1, 1910—Ref. from Adler (No. 16).
(76) Zanoni—Med. Standard, Nov. 1908—Ref. from Adler (No. 16).
(77) Hertoghe—Bull. de l'Acad. royale de Med. de Belgique, 21, 4, 1907—Ref. from Adler (No. 16).
(78) Leonard Williams—Lancet, May 1, 1900—Ref. from Adler (No. 16).
(79) Fleischner—Ref. cit. (No. 62).
(80) McCready—Penn. Med. Jour., Jan. 1911—Ref. from Adler (No. 16).
(81) A. C. D. Firth—Lancet, Dec. 9, 1911 — Ref. from Adler (No. 16).
(82) John Rehrah—Am. Jour. Med. Sc., Feb. 1911—Ref. from Adler (No. 16).
(83) Sainway—Ref. from Adler (No. 16).
(84) Gersung—Ref. from Adler (No. 16).
(85) Semb—Norsk. Mag. f. Laegevidenskaben, Nov. 1911—Ref. from Adler (No. 16).
(86) Fabre and Trillat—Am. de Gynec. et d'Obs, Sept. 1908. (Ref. Adler (No. 16).
(87) E. H. Eising—Med. Rec., Apr. 27, 1912—Ref. from Adler (No. 16).
(88) Robt. K. Rewald—Penn. Med. Jour., 33: 386, Mch. 1930.
(89) Bronson Crothers—Clin. Pediat., 5, Appleton, 1926,—Ref. from Rewalt (No. 88).
(90) L. Coffe, Boinglas and Comsa — Presse Medicale, Paris, 37: 1202, Sept. 14, 1929. Ab. J. A. M. A. 93: 1687, Nov. 23, 1929.
(91) Francis B. Jacobs—Penn. Med. Jour., 33: 388, Mch. 1930.
(92) Harry Lowenburg—Penn. Med. Jour., 33: 388, Mch. 1930.
(93) A. R. Thompson—Brit. Jour. Child. Dis., 19, 1910—Ref. from Bleyer (No. 1).
(94) C. Bruns—Attid. r. Accad. Med.—Chir., Naples, 1905—Ref. from Mitchell (No. 8).
(95) F. Korats—Ztschr. f. Tuberk., 39, 185, 1923—Ref. from Mitchell (No. 8).
(96) Gallaria—Pediatria, Naples, 1912 — Ref. from Mitchell (No. 8).
(97) P. Mueller—Ztscr. f. Tuberk., 42, 294, 1925—Ref. from Mitchell (No. 8).
(98) Editor—Jour. Am. Med. Assoc., 92: 1698, May 18, 1929.
(99) H. Cramer —Zutrlblt f. Gynakol. Leipzig, 53, Feb. 9, 1929.—Ab. J. A. M. A., 92: 398, Apr. 20, 1929.
(100) G. Brown Miller — Surg. Gynec. and Obstet.., Jan. 1910,—Ref. from Adler (No. 16).
(101) Caspar—Zeitscar. f. Urol., II Beiheff, S. 238, 1912—Ref. from Adler (No. 17).
(102) H. A. Kelly—Therap. Gaz., Oct. 5, 1912—Ref. from Adler (No. 17).
(103) E. L. Young—Jour. Urol., 7, 1922, p. 1.—Ref. from Mattes (No. 106).
(104) Cumston—Therap. Gaz. 45, 1921, p. 171—Ref. from Mattes (No. 106).
(105) W. E. Carter—Arch. Pedi., 38: 285, 1921.—ref. from Mattes (No. 106).
(106) A. Mattes—New Orleans Med. and Surg. Jour., 80: 310, Nov. 1929.
(107) J. R. Stamper—New Orleans Med. and Surg. Jour. 80: 312, Nov. 1927.
(108) H. W. E.W althor—New Orleans Med. and Surg. Jour., 80: 312, Nov. 1927.
(109) Frank J. Chalaron— New Orleans Med. and Surg. Jour., 80: 313, Nov. 1927.
(110) Porter—Ref. from Mitchell (No. 8).
(111) C. Will—Arch. Ped., 41: 232, 1924.—Ref. from Mitchell (No. 8).
(112) Dunham—Am. Jour. Dis. Child., 12: 618, 1916.
(113) Arthur J. Blau—Med. Jour. and Rec., 124: 492, Oct. 20, 1926.
(114) Bonacarse —Pediatria, Naples, Sept. 1, 1925, p. 936—Ref. from Blau (No. 113).
(115) Adrien Bleyer—Am. Jour. Dis. of Child., 36: 988, Nov. 1928.

St. Joseph's Hospital (Phoenix)

(November Staff Meeting)

St. Joseph's Hospital Staff met in joint meeting with the Maricopa County Medical Society on Monday evening, November 10, 1930, at 8 p. m. The County Society presented their program and at 9 p. m. the meeting was turned over to the staff, Dr. Brockway presiding, with thirty-eight members present.

The meeting was called to order by Dr. Brockway and the minutes of the previous staff meeting and the previous executive council meeting, also the analysis of hospital service, were read by the secretary.

The purpose of recommendation of the council, that the office of emergency surgeon be done away with, was explained to the staff by Dr. Brockway.

The following applicants were voted to membership by the staff.

Loren C. Barlow, M.D.; Martin C. Flohr, M.D.; Robert Franklin, M.D.; Guy French, M.D.; V. F. Kennedy, M.D.; Hilary Ketcherside, M.D.; Leslie R. Kober, M.D.; J. D. Hamer, M.D.; M. I. Leff, M. D.; William Maloney, M.D.; John H. Patterson, M. D.; Norman Ross, M.D.; Oscar W. Theony, M.D.; W. A. Baker, D.D.S.

The scientific part of the program was then presented, the program being prepared by Dr. W. A. Schwartz.

1. Case No. 18979. Fracture of right femur with separation of the lower epiphysis, presented by Dr. Greer, with general discussion.

2. Case No. 18827. Brain abscess and meningitis, presented by Dr. McLoone, discussed by Dr. Schwartz.

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COMPLETION OF THE GRUNOW MEMORIAL BUILDING IN PHOENIX

The completion of the Grunow Memorial building in Phoenix the latter part of December has allowed the physicians and surgeons who will have their offices there, and who will form the Lois Grunow Memorial Clinic, to move in. The building of this institution and formation of the clinic group was the culmination of plans laid by Mr. Wm. C. Grunow of Chicago and Dr. W. O. Sweek of Phoenix, about a year ago. Because of the dominant influence of Dr. Sweek in the formation of this organization, it is more famiilarly known in Phoenix and vicinity as the "Sweek-Grunow Clinic." The plans include research laboratories to be supported by rental from the offices and profits from the commercial laboratories connected with the clinic group. Mr. Grunow's gift embraces the building and equipment, including the laboratory equipment. The doctors in Phoenix who will have offices in the building and participate in the work which is performed as a clinic organization, are the following: .

Dr. W. O. Sweek, organizer of the project, who will have charge of all the surgical work; assisting him will be Dr. Guy C. French, who has been associated with Dr. Sweek for the past two years; they have moved from the Heard Building to the new structure.

Dr. Win Wylie, who has moved from his offices in the Goodrich Building, will be consultant in diseases of women for the clinic group.

Dr. Floyd B. Sharp will continue in the practice of the specialty of obstetrics, having moved his offices from the Heard building; associated with him will be Dr. Martin C. Flohr, who has recently completed his residency work at St. Joseph's Hospital.

Dr. William A. Kingsley, formerly located in the Heard Building, has moved to the new structure, and will continue in his specialty of eye, ear, nose and throat disease.

Dr. W. P. Sherrill, formerly in the Luhrs Building, has moved and will continue in the practice of pediatrics.

Dr. H. J. McKeown has moved from the Heard Building and will continue to practice the specialty of chest diseases.

Dr. John A. Lentz has moved from his down-town office and will practice dentistry from the new location.

The physicians, not previously practicing in Phoenix, who will have offices in the building and form part of the clinic organization, are the following:

Dr. L. B. Baldwin, from Rochester, N.Y., who will practice in the field of internal medicine.

Dr. David M. Davis, from the Brady Urological Institute, Baltimore, will practice urology.

Dr. Percy Brown, formerly of Harvard University, will be the radiologist for the group.

Dr. Paul H. Guttman, formerly of Minneapolis, Minn., will be in charge of the clinical laboratory.

The doctors in the new building will all conduct their private practices as heretofore, functioning as a clinic organization on those cases which come to the institution for that type of service.

ST. JOSEPH'S HOSPITAL (Phoenix)

(December Staff Meeting).

The St. Joseph's Hospital Staff and the Maricopa County Medical Society met December 8, 1930, in the Lecture Hall of the Nurses' Home, with fifty-three doctors present.

The program of the Maricopa County Medical Society was presented first, consisting of a talk by Dr. William H. Walsh of Chicago.

The staff meeting was then called to order by Dr. Brockway and the minutes of the November staff meeting were read by the secretary. The proposed Constitution and By-Laws were then discussed and Dr. Brockway, chief of staff, proceeded with the reading of the proposed Constitution and By-Laws to and including the third article. There was some discussion upon Article 3, relative to membership.

There seemed to be some confusion in the minds of the members present and Dr. Holmes moved that each staff member be furnished with a copy of the proposed Constitution and By-Laws and that the matter be taken up at the next regular meeting. The motion was seconded by Dr. Shields and was carried. Later, Dr. Victor Randolph moved that this motion be reconsidered and that the members be furnished copies immediately, that the staff meeting be adjourned to Monday night, December 15, and that the discussion of the Constitution and By-Laws be continued at that time. This was seconded by Dr. McLoone and the motion carried.

The scientific part of the program was then proceeded with and Dr. Jordan's case, No. 20824, was presented. Discussion was offered by Dr. Carson and Dr. Palmer. Dr. Carson especially requested a discussion of his discussion for the reason that some recommendations for the Maternity Department of the Hospital were suggested. Very little discussion followed, however.

The time being limited, the meeting adjourned.

ST. JOSEPH HOSPITAL (Albuquerque.)

(Staff Meeting, Nov. 18, 1930.)

Dr. E. W. Johns presented the following case reports:

The case we have to present tonight is rather unusual. We first saw the patient October 18, at which time she had an exceedingly intense jaundice.

The past history was unimportant, except for a pelvic fracture one year ago in an auto accident. She had always been an unusually healthy and robust girl. Mother and father and one sister were living and well, as well as husband, to whom she had been married two years without pregnancy. Menses normal, and the last one occurred about a week before we saw her. She had no particular stomach trouble, as patient stated that, if she ate properly, she had no trouble, but did have occasional attacks of indigestion, which were attributed to indiscretions in diet. These had been a little more frequent since the auto accident, but none of a serious nature.

The present illness had begun one month ago with a severe nasal cold, since when she had not felt very well, but had been well enough to play golf two or three times a week, but would come home all tired out and felt tired most of the time. She had had a little more than usual indigestion during this time, but no attacks which gave much discomfort and no acute attacks of pain. She had noticed clay-colored stools for the past two weeks. About one week before we saw her, she menstruated, and it was more profuse than usual and she thought she might be miscarrying. Any attempt at abortion in any manner was emphatically denied. While menstruating, and five days before we saw her, she developed edema of the face and petechial hemorrhages of the skin, which were especially abundant on the arms and face. She quickly became very ill, with marked nausea and vomiting, together with severe prostration. The following day, severe jaundice appeared. When we saw her, four days later, there was no indication of the skin hemorrhages, except for a few scabs on the face, which were, perhaps, the result of scratching. The outstanding thing about her was her intense jaundice, which was intense everywhere, including the sclera and mucosa. She said that she had no pain and examination revealed only a very little tenderness on rather deep palpation in the gallbladder region and in the left upper quadrant in the region of the spleen. This latter pain was very slight, however; which is significant in the light of postmortem findings which will be given later. The abdomen had considerable distention from gas. There was almost a complete loss of liver dullness at first, which later partially returned. The heart was about 100 in rate. Blood pressure 120/70. There were no murmurs. P.M.I. was inside the mid-clavicular line. The lungs were clear. Respiration, 20. Reflexes normal. She was a very obese young woman about 20 years of age. Appeared to be fairly comfortable with moderate degree of prostration. Quite uncommunicative. Her unfailing response to the question as to how she felt, was always "fine." Leading questions always were answered as shortly as possible.

Temperature on admission was 98 degrees and at 8 p. m. that night a temperature of 100 degrees per rectum was recorded. After that the temperature ranged from 96.2 to 98.4 until the last 24 hours of life, when it went to 100.6 per rectum. Pulse range was very little, being between 90 and 100 very constantly until the last 24 hours, when it reached 130. Respirations were very constant, at 18 to 24. Van den Bergh's test was done once shortly after admission and found to be positive in both the direct and indirect reactions, and the Fouchet test was found postiive for hyper-bilirubinemia. The blood count was surprising, the first white count being 46,400, with 91 per cent polymorphonuclears, 7 per cent small lympocytes and 2 per cent transitionals. It was checked the following day and found to be 46,000. On the 25th, the white count dropped to 33,100; and on the 28th, to 18,600; while on the 30th, which was the day preceding her death, it had gone back again to 32,700. The nonprotein nitrogen on Oct. 26 was 176 mg. per 100 c.c. and the urea nitrogen 104 per 100 c.c., showing great retention of nitrogen. The urine, on several examinations, two of which were catheterized specimens, always showed a little albumin and many white blood cells, but no casts.

We instituted Lyon Meltzer gallbladder drainage and, after introducing about 200 c.c. of 30 per cent magnesium sulphate, finally got good drainage of bile. From this time on, her jaundice rapidly cleared and in a very few days her skin was a good color except for a somewhat ashen hue. The stools changed at once from a gray to a greenish yellow and remained so. She seemed to improve somewhat for a time and was able to retain a little light food and liquids but became quite anemic. The blood on the 28th showed 1,840,000 red blood cells and 36 per cent hemoglobin by Newcomer

method. On this date a transfusion was done and 600 c.c. of typed blood was given her. Type IV (Moss) blood was used, as she was Type III and such a donor was unavailable. She showed a good reaction but intractable nosebleed soon followed, which was not controlled until posterior packing was put into each nostril, in spite of heavy dosage of fibrogen and calcium chloride. The bleeding time on the 28th was 3 minutes and the coagulation time 4 minutes on admission and 5½ on the 30th, which was the day preceding death. Our diagnosis at first was obstructive jaundice, which, in the face of complete relief by Lyon Meltzer drainage, seemed conclusive except for the high white count. Acute yellow atrophy was considered strongly, because of the diminished liver dullness and the diphasic van den Bergh, and this was the diagnosis of a physician seeing her before we did. With the successful Lyon Meltzer drainage, this diagnosis became untenable. With the continued prostration, vomiting and high white count after the clearing up of the jaundice, we sought sources of toxemia. Her condition, however, was such that we did not think that an exploratory operation was warranted, in view of the lack of definite indications for such. In spite of the transfusion, together with rectal feeding and hypodermoclysis, she grew gradually weaker and died at 5 a. m. the morning of the 31st.

Consent for a postmortem examination was obtained and was performed by Dr. Warden. His findings were as follows:

The body is that of an adult, white female, apparently about 25 years of age, and about 5 ft. 3 in. tall, and rather obese. The face appears to be somewhat swollen. Red, frothy fluid exudes from the mouth. Both nostrils are occluded by blood-stained gauze packs. There is a small, surgical incision in the right cubital fossa which has been closed by adhesive tape. Needle punctures through the skin are seen at the lower margin of each breast and on the inner aspects of the thighs. The mucous membranes are pale. Some body heat is still present. Rigor mortis has appeared.

Considerable fat is encountered when a midline incision is made over the thorax and abdomen. The peritoneum is found to contain a normal amount of fluid and its surface in general is smooth and glistening. The appendix is slightly reddened and its peritoneal coat has lost some of its luster. The right fallopian tube is reddened and, when it is picked up, pus exudes from its fimbriated end. Stained smears of this pus reveal numerous pus cells, gram-negative rods, and gram-positive cocci in pairs and in short chains. A few flecks of fibrin are seen on the surface of the peritoneum adjacent to the fimbriated end of this tube. The gallbladder is distended and pressure upon the gallbladder fails to empty it. Several enlarged lymph nodes, the largest having a diameter of about 1.5 sm., are found along the course of the common bile duct.

When the thorax is opened about 750 c.c. of thin, red fluid is found in the left chest cavity. Within this fluid a few fibrin flakes are found. The pleural surfaces appear to be smooth and glistening. The lower lobe of the left lung is almost completely collapsed. There is only a small amount of fluid in the right chest cavity. Its surfaces are smooth and glistening. The pericardial sac contains a normal amount of fluid. Its surfaces are smooth and glistening. When the esophagus is opened its mucosa is seen to have a normal appearance. The trachea contains red, frothy fluid. Its inner surface is reddened. No abnormality is found in the aorta or in the inferior vena cava. The heart has a normal size. Its pericardial surface is smooth and glistening. Its chambers contain a small amount of clotted blood. Its valves have a normal appearance.

The right lung feels somewhat boggy, especially in its dependent portion, but crepitates throughout. Its surfaces are smooth and glistening. On surfaces made by cutting, a moderate amount of pink, frothy fluid exudes. The lower lobe of the left lung is small and does not crepitate. It has a fleshy consistency. The upper lobe crepitates throughout but feels somewhat boggy. The surface of the lower lobe is red. The pleura, however, appears to glisten. The surface of the upper lobe is gray. On surfaces of the lower lobe made by cutting, very little fluid exudes; surfaces of the upper lobe exude considerable pink, frothy fluid.

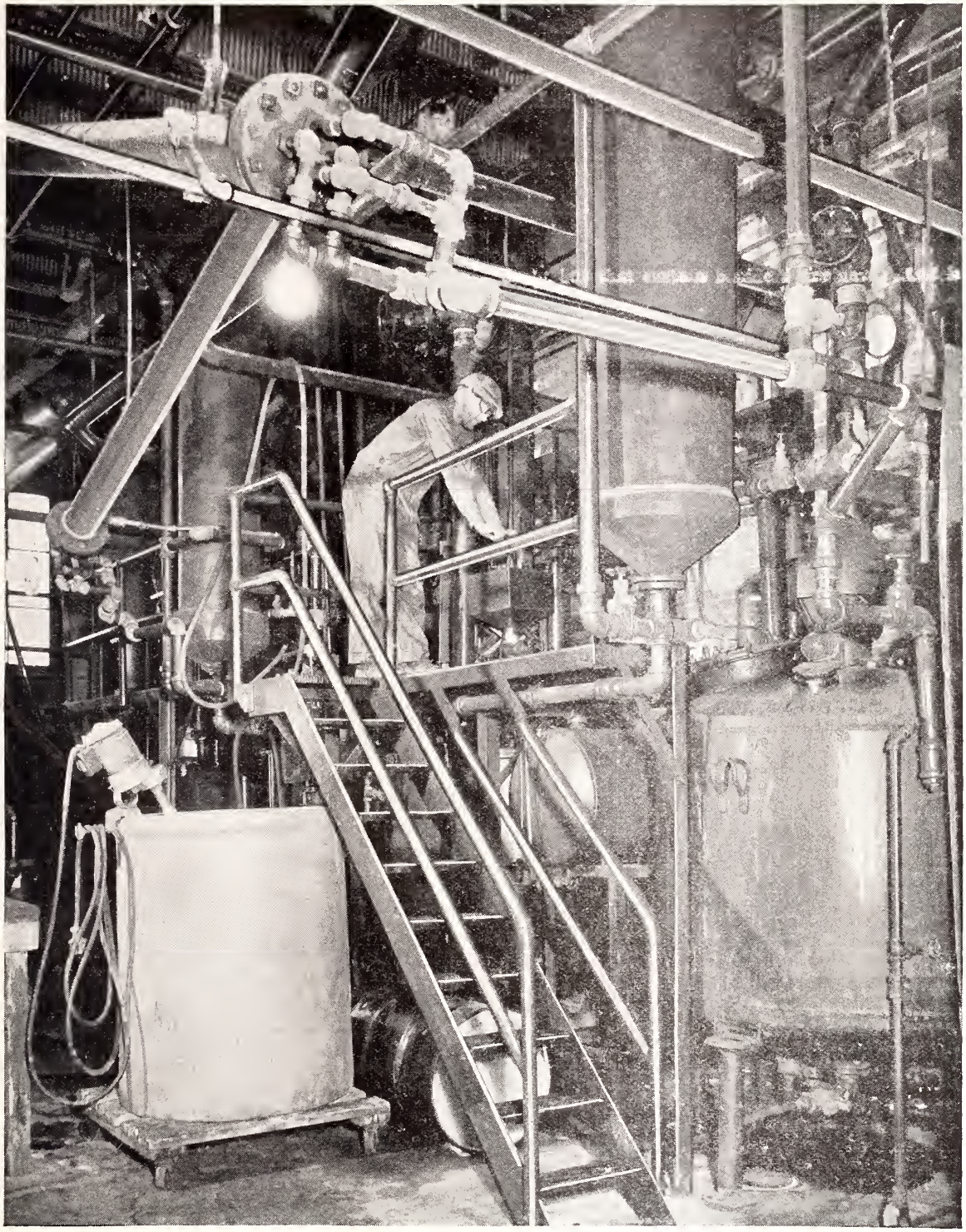
The kidneys have a normal size. The consistency of each is soft. The capsule of each strips readily, leaving a smooth surface. That of the left kidney is mottled, due to the presence of numerous, minute petechial hemorrhages. The renal markings are fairly well preserved in each kidney. Minute red points are seen, however, on the surface of each within the renal markings. The edges of cut surfaces do not roll out. In adrenals, ureters and bladder, no abnormality is found. The surfaces of the renal pelves, likewise, are free from gross pathology.

In the uterus and both ovaries, no abnormality is found. The left tube is grossly normal. The surface of the right tube is moderately reddened. When the tube is compressed, pus exudes from its fimbriated end.

The liver has a normal size. Its capsule is smooth and glistening. Its consistency is normal. On surfaces made by cutting, the centers of the lobules are seen to be stained green by bile, while the peripheries have a gray appearance. The gallbladder, when opened, is found to contain thick bile. No stones are found within it. No obstruction was demonstrated in the common bile duct. The large lymph nodes, however, previously described, lie in close approximation to the common bile duct.

When the spleen is displaced downward from the left diaphragm, a small sub-diaphragmatic abscess is encountered between the spleen and diaphragm. The surface of the spleen forms part of the wall of the abscess, and this portion of the surface is covered by a thick layer, apparently fibrin. Elsewhere on the surface of the spleen, several small miliary abscesses are encountered, which, when incised, are found to contain thick white pus. The spleen has about a normal size; its consistency is soft. The gastric surface of the spleen is adherent to the posterior wall of the stomach at the fundus.

The stomach, when opened, is found to contain about a liter of thin brown fluid. When this is washed out, and its mucosa inspected, a perforated ulcer is found, high up in its fundus and on the posterior wall adjacent to the spleen. It is this portion of the wall of the stomach which is adherent to the spleen. When the fibrinous adhesions which unite the two are broken, a small abscess containing thick, white pus is found. The ulcer opens into this abscess pocket. The ulcer itself has a diameter of only about 2 mm. and a normal mucosa extends up to the edge of the ulcer. Palpation of the wall of the stomach, bordering on the ulcer, reveals no thickening. On the outer surface of the stomach the peritoneum has disappeared over the portion of the stomach wall which forms



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part of the wall of the abscess, and the muscle coat is exposed to view. In the remainder of the stomach no abnormality is found. The duodenal is normal. The remainder of the small bowel and the large bowel, while not opened, reveal no evidence of pathology when examined externally.

In the pancreas no abnormality is found.

In a culture made from the heart's blood, obtained under sterile conditions, no growth is obtained.

In a culture of pus from the right fallopian tube, there are gram-negative rods, gram-positive cocci, separately and in short chains, and long threads showing no branching, resembling the threads of some of the higher forms of bacteria.

Microscopic Examination

In stained microscopic sections of the liver, accumulations of greenish-brown pigment are seen in the areas surrounding the branches of the hepatic vein. In the portal areas, many of the cells contain large vacuoles and have a signet ring appearence. They have evidently been infiltrated by fat. A few similar cells are seen in the hepatic areas.

In sections of the kidneys, both are found to have a similar appearance. The majority of the glomeruli have a normal appearance. In a considerable number of the glomeruli, however, dilated capillaries are seen. Within the spaces surrounding some of the glomeruli, red blood cells are seen. Many of the tubules contain dense masses of red blood cells. No further abnormality is seen.

In sections of the lower lobe of the lung, the majority of the alveolar spaces are seen to be collapsed. The capillaries in the alveolar walls are distended by blood. Such alveolar spaces as are open contain pink-staining granular material.

In sections from the spleen taken from the region of the abscess, the capsule is seen to be thickened and to be infiltrated by both lymphoid cells and pus cells. Within the spleen iself the capillaries are dilated. At one margin there is an area in which cell outlines are seen but in which few nuclei are found.

In sections of a lymph node taken from the vicinity of the common bile duct, the lymph spaces appear to be dilated. There appears to be an increase in the number of endothelial cells.

Anatomic Diagnosis

Perforation of an ulcer in the fundus of the stomach, leading to a walled-off abscess between the stomach and the spleen, and to a small subphrenic abscess between the spleen and the left diaphragm. Secondary miliary abscesses in the spleen, and secondary acute hyperplastic lymphadenitis in the lymph nodes surrounding the common bile duct. Right acute suppurative salpingitis, with peritonitis localized to the region of the ostium of the right tube, secondary to the infection in the upper abdomen. Marked anemia, with probable generalized hemorrhagic diathesis. Recent hemorrhage from the nose. Multiple small hemorrhages into the tubules of both kidneys. Fatty in-

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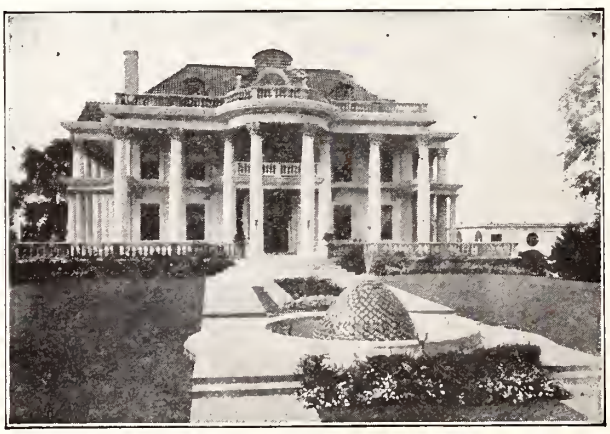

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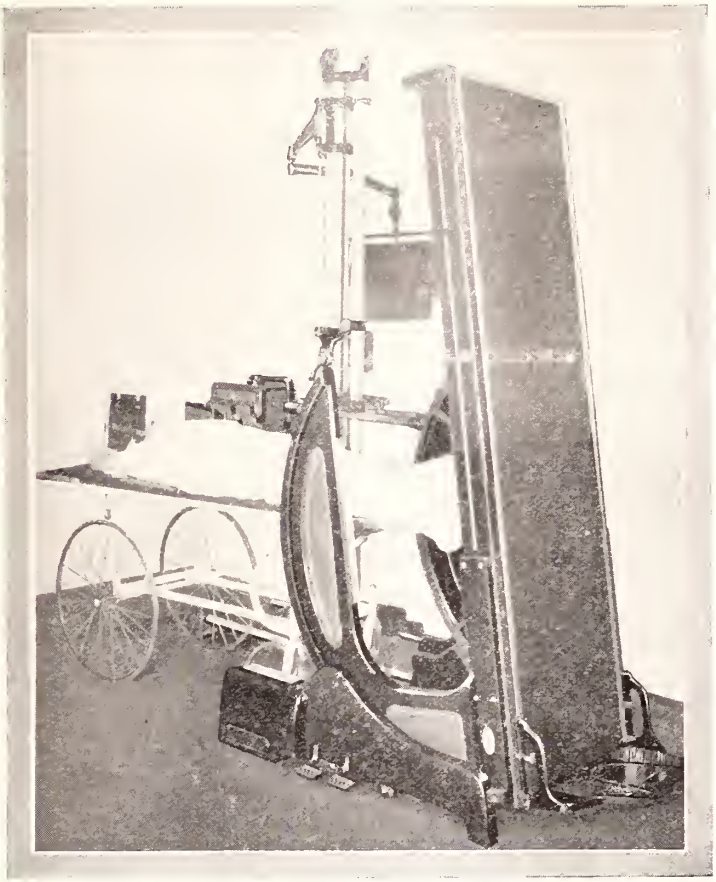

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filtration in a liver which is bile-stained from a recent jaundice (the jaundice probably being the result of compression of the common bile duct by an enlargement of the lymph nodes surrounding it.) Left hydrothorax, with compression atelectasis of the lower lobe of the left lung. Moderate edema of both lungs. Acute catarrhal tracheitis. Small surgical incision in the right cubital fossa (at the site of a recent blood transfusion. Multiple needle puncture marks in the skin (the result of subcutaneous administration of fluids.)

DISCUSSION

The finding of the perforated gastric ulcer was somewhat of a surprise to us, as we had nothing in either the history or the physical findings pointing toward it, except for the vomiting and the very slight tenderness in the splenic area. There was the diminished liver dullness, but, in view of the jaundice, it was associated with this condition. The lack of peritoneal symptoms was due to the very slow perforation into the culdesac between the stomach and spleen, which allowed adhesions to form before actual perforation occurred.

We have another case to report which is worth reporting because of its much more usual onset and the fact that it, too, was a perforated gastric ulcer. This case gave a history of severe stomach trouble for one year relieved by food taking. The present attack began shortly after a full meal at noon and was very sudden, with agonizing pain which was not relieved by morphine. After some delay the patient was brought 200 miles by auto to St. Joseph Hospital and was operated upon about 9 hours after the perforation occurred. A perforated ulcer in the anterior gastric wall, just proximal to the pylorus, was found. There were no adhesions. The convalescence was unusually smooth and uneventful.

These two cases are unusual, in that they are both gastric ulcers and were in the hospital at the same time, in view of the fact that all statistics show ulcers to be about 75 per cent duodenal and not over 25 per cent gastric, although of perforated cases about two-thirds are usually found to be gastric and, according to Bager, if duodenal and gastric ulcers in pyloric region are considered together, they will form about two-thirds of all perforations. They well illustrate the difference between a quickly penetrating ulcer without walling off adhesions, which represents about three-fifths of all ulcers, and the more slowly forming perforations which form adhesions. In the two-fifths of all ulcers where adhesions form, they are with the pancreas in about one-half of the cases, or one-fifth of all perforated ulcers; next most commonly the adhesions are with the left lobe of the liver, and much more rarely with other contiguous parts, as lymphatic glands, diaphragm, spleen, kidney, suprarenal capsule, omentum, colon, small intestine, gallbladder, sternum, or anterior abdominal wall. Our second case illustrates the more usual location of the peptic ulcer on the stomach wall, as Balfour states that 90 per cent are on or near the lesser curvature. Welch reports the location of 795 ulcers, in 566 cases, as follows, using a more definite localization than Balfour:

Lesser curvature	36.3%	77.9%
Posterior wall	29.6%	
Pylorus	12.0%	
Anterior wall	8.7%	22.1%
Cardia	6.3%	
Fundus	3.7%	
Greater curvature	3.4%	

Our first case falls in the fundus group of 3.7% of all cases, which is next to the lowest group, while our second probably would be classed by Welch with his pylorus group of 12 per cent.

There is considerable variation in the percentages which perforate in the different locations, which have been reported by Brinton as follows:

Posterior surface	2%
Pyloric region	10%
Middle portion of stomach	13%
Lesser curvature	18%
Cardiac extremity	40%
Anterior surface	85%

Our first case falls into the 2 per cent posterior surface of the stomach group, while our second probably would be grouped with the 10 per cent pyloric group, but, being on the anterior surface, it is at least akin to the anterior surface group with its 85 per cent of perforations.

These two cases are instructive in that they illustrate the two extremes of gastric ulcer perforation. The one, insidious and slow in onset, without serious symptoms; in fact, so innocuous that the patient did not consult a physician until 17 days before her death, and the symptoms were so disguised that perforated ulcer was not given more than passing consideration. The second, with very severe characteristic symptoms, making a probable diagnosis over long-distance telephone possible. The outcome of the two is very striking in that the one with the mild onset, apparently without serious illness, resulted in a fatal outcome to the patient, while the one with the

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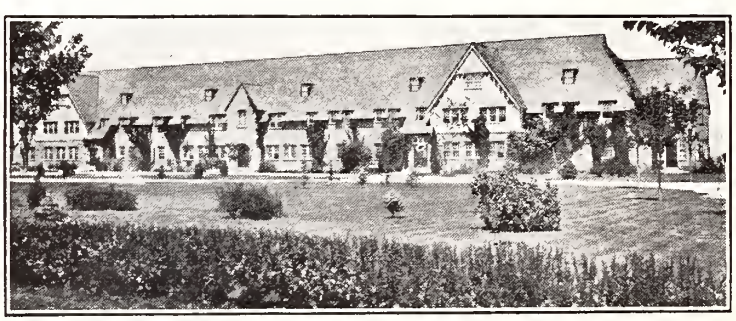

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sudden cataclysmic onset, with most apparent desperate illness of the patient, had a happy outcome.

Following a general discussion of the cases reported by Dr. Johns, Dr. L. S. Peters briefly outlined the history, the clinical course, and the postmortem findings in a young boy recently seen by him, in which death was due to hemorrhage from a mediastinal abscess which had perforated through the trachea.

A series of motion pictures was then presented, illustrating the surgical treatment of peptic ulcer.

BOARD OF MEDICAL EXAMINERS OF ARIZONA

The following physicians have been granted license to practice medicine in Arizona, at the January, 1931 meeting of the Board of Medical Examiners:

DR. G. ARNOLD STEVENS, to be located at Clifton, Ariz. Graduate of the College of Medical Evangelists, Loma Linda, Calif., by reciprocity with the National Board of Medical Examiners.

DR. ALEXANDER McKEAN, Miami, Ariz., to be associated with the Health Department of Gila County. Graduate of Northwestern University, previously located at Salt Lake City. Reciprocity with Iowa.

DR. G. BYRON STEWARD, Stockton, Mo., graduate of St. Louis University (1920), licensed by reciprocity with Missouri.

DR. HOMER R. LATHROP, Casper Wyo., graduate of Rush Medical College (1901), licensed by reciprocity with Illinois.

DR. PAUL H. GUTTMAN, pathologist associated with the Grunow Memorial Clinic, Phoenix. Graduate of Washington University, St. Louis (1927), licensed by reciprocity with the National Board of Medical Examiners.

DR. JAMES OSCAR HICKS, Victoria, Texas, graduate of Kentucky School of Medicine (1926), licensed by reciprocity with West Virginia.

DR. ARTHUR H. WALL, Kansas City, Mo., graduate of Kansas City Medical College (1895), licensed by reciprocity with Missouri.

DR. GEORGE H. SPIVEY, Phoenix, Ariz., in charge of the work sponsored by the Rockefeller Foundation for the Maricopa County Board of Health. Graduate of University of Louisville Medical Dept. (1911), licensed by reciprocity with Mississippi.

DR. DAVID M. DAVIS, who will practice urology with the Grunow Clinic organization, Phoenix. Graduate of Johns Hopkins University (1911), licensed by reciprocity with Michigan.

DR. HENRY D. WATSON, Binghampton, N. Y. Graduate of University of New York (1896), licensed by reciprocity with New York.

DR. CHESTER L. WILSON, Yuma, Ariz. Graduate of University of Louisville Medical School (1929), licensed by examination.

DR. HAROLD L. SNOW, San Pedro, Calif. Graduate of Northwestern University, Chicago (1929), licensed by examination.

DR. B. P. STORTS, Jr., Ajo. Ariz. Graduate of University of Louisville (1929), licensed by examination. To be associated with the New Cornelia Copper Company.

DR. GEORGE F. C. FASTING, Tucson, Ariz.. graduate of Rush Medical College (1926), licensed by examination.

DR. DOROTHY M. FRANKLIN, Tucson, Ariz., graduate of University of Illinois College of Medicine (1928), licensed by examination.

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Will hold its Third Spring Clinical Conference in Dallas, March 30th to April 3rd, 1931.

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DR. LOUIS B. BALDWIN, Phoenix, Ariz., to practice internal medicine with the Grunow Clinic. Graduate of College of Physicians and Surgeons of New York (1919). Licensed by reciprocity with New York.

DR. FRED P. PATTON, Tucson, Ariz. Graduate of Rush Medical College (1901), licensed by reciprocity with Illinois.

PERSONAL NEWS ITEMS

DR. H. D. ATWOOD, formerly located at Ajo, Ariz, on the staff of the New Cornelia Copper Company, has entered into the general practice of medicine in Phoenix, occupying the offices in the Heard Building formerly occupied by Dr. Couch. Dr. Atwood has taken charge of the work vacated by Dr. Calvert in Scottsdale, and is maintaining office hours in this suburban town, as well as in Phoenix.

DR. WM. C. TODT, of Kingman, Ariz., has been spending some weeks in Phoenix recuperating from a respiratory infection, which the rigors of the northern town would not allow to recover.

DR. R. O. LIEUALLEN, formerly Superintendent of the State Hospital in Phoenix, whose resignation from that position followed as the usual result of change in state administration, has accepted a responsible position with the California State Hospital at Norwalk, Calif.

DR. H. B. STEWARD, of Coolidge, Ariz., has been appointed physician for the State Prison at Florence, and has moved to the latter town to assume charge of his new duties.

DR. GEORGE W. STEPHENS, who was superintendent of the Arizona State Hospital under the last previous administration of Governor Hunt, has been re-appointed to that position and has taken charge of his old position at that institution.

DR. J. D. MAULDIN, of Phoenix, has been appointed Health Officer for Maricopa County, succeeding Dr. C. W. Brown, who gave up the office as the inevitable result of a new line-up of political forces the first of the year.

DR. JOHN R. EARP, formerly of Boulder, Colo., has been appointed Director of the Bureau of Public Welfare of New Mexico, succeeding Dr. Luckett. The reasons for Dr. Luckett's resignation have not been learned as yet, but the whole medical profession of the southwest will regret to lose him; the constructive work done by him in New Mexico during the ten years or more of service there has been outstanding. Dr. Earp comes to the office with many years of experience in executive work, having served among other responsible positions, as editor of Colorado Medicine.

DR. E. C. WILLS, of Phoenix, has opened offices at 704 N. Central Ave., where he will give special attention to electrotherapy. He has equipped his offices for medical and surgical diathermy, sinusoidal and galvanic electrotherapy, phototherapy by infrared or ultraviolet, electric vibration, massage, nerve regeneration and muscle training.

DR. JOHN WIX THOMAS has moved his offices from the Heard Building to his residence at 1217 N. Central Ave. He will observe his usual office hours at the new location, having remodelled a portion of the residence into office quarters.

DR. T. J. BOULDIN, of St. Johns, Apache County, is spending two months in Phoenix, as the state senator from that county. He was elected without opposition in the last general election.

DR. O. C. PATTON, of Ajo, is the member of the state legislature for the Ajo district of Pima County, and is spending the period of the legislature in Phoenix.

FIFTEENTH ANNUAL CLINICAL SESSION Of The AMERICAN COLLEGE OF PHYSICIANS

The Fifteenth Annual Clinical Session of the American College of Physicians will convene in Baltimore, Maryland, March 23-27, and in Washington, D. C., March 28. 1931. Those who attend the meeting will find ample in the way of clinical, laboratory, research and historical interest, to repay them for the time spent in making the journey. Dr. Sydney R. Miller, of Baltimore. President of the American College of Physicians, has prepared the program for the General Scientific Sessions, while Dr. Maurice C. Pincoffs, General Chairman, also of Baltimore, has arranged the program of clinics, demonstrations, entertainment. etc.

As an added feature of the Clinical Session this year, an additional day, March 28. will be spent in Washington, D. C., where a special program of clinics and inspection tours has been arranged under the auspices of the Medical Departments of the U. S. Army, U. S. Navy, U. S. Public Health Service and Georgetown University. Dr. William Gerry Morgan is acting as Chairman of the Washington Committee.

The entire program of the Clincal Session is characterized by new subjects, new authors and wide geographic representation. It is significant that the Committees have attempted carefully to avoid repetition of subjects and authors, as has so often been the case in previous years. On the General Scientific Programs there will be forty-five or fifty selected formal papers. Symposia on blood diseases, oxygen therapy, diseases of the liver, recent advances in endocrinology with particular reference to the newer work on supra-renal extracts, myocarditis, and several other subjects have been arranged. At Baltimore's many modern and excellently operated hospitals, clinics, ward-walks, laboratory demonstrations and the like will be held. Johns Hopkins Hospital and Medical School, under Dr. Alan M. Chesney, Dean, and a specially appointed Committee, will place at the disposal of the College all of its facilities and offer a program of great interest. Additional hospitals, such as the Union Memorial Hospital, St. Agnes Hospital, at which Dr. Joseph C. Bloodgood does so much of his work, the Municipal Hospitals, and several of the more private institutions, such as the Howard A. Kelly Hospital, noted particularly for its radium activities, and the Sheppard and Enoch Pratt Hospital, which is one of the most modern dealing wiht psychiatric problems, and many others will provide programs of clinics.

Hotel headquarters will be at the Lord Baltimore Hotel, while general headquarters, at which the registration of members, commercial exhibits and all general sessions will be held, will be The Alcazar, Cathedral and Madison Streets, Baltimore. Transportation on the Certificate Plan of reduced fares will be available to all physicians and dependent members of their family from all parts of the United States and Canada. A special program of entertainment has been arranged for visiting ladies. The Convocation for the induction of new members, as Masters or Fellows, will be held on Wednesday evening, March 25, and the Annual Banquet will be held on Thursday evening, March 26. The Business Meeting, at which reports of administration and elections for the new year will take place, will be held during the forenoon of Thursday, March 26.

Mr. E. R. Loveland, 133-135 S. 36th Street, Philadelphia, is the Executive Secretary of the College, and it is to him that requests for further information or programs should be addressed.

DALLAS SOUTHERN CLINICAL CONFERENCE

The third Annual Spring Clinical Conference of the Dallas Southern Clinical Society will be held in Dallas during the week of March 30th. Invitations to attend are being sent to all orthodox physicians of the Southern States and Mexico.

The program for the week is built around the lectures and hospital demonstrations of seventeen guest lecturers, among whom are Dr. Walter C. Alvarez of Rochester, Minnesota, Dr. Louis J. Hirschman of Detroit, Drs. Morris Fishbein, Russell Wilder, C. G. Grulee, L. J. Pollock, A. A. Hayden and W. A. Pusey of Chicago, Drs. Chevalier Jackson and H. K. Pancoast of Philadelphia, Dr. Dean Lewis of Baltimore, Dr. Jeff Miller of New Orleans and others. Ninety-six hours of organized post-graduate work is being offered by local men in addition to the general assemblies and hospital clinics. The Baker Hotel is headquarters for registration and all assemblies.

THE DOCTOR IN COURT, by Edward Huntington Williams, M.D.; The Williams and Wilkins Company; Baltimore; 1929.

The physician may at any time be called to testify in court. The better the witness, because of his knowledge, the more likely will be the opposing attorney to attempt to embarrass him.

The methods by which a witness may be attacked in cross-examination are devious and numerous.

Dr. Williams gives actual court room experiences, and shows the reader the types of situations which may arise. No book can supplant court room experiences and make the novice the equal of the experienced witness; a careful study of this book, however, must make the physician better prepared to testify when compelled to do so.

The small price of the book will be returned perhaps many times to the physician who is familiar with its contents before appearing in court.

The author writes entertaingly. The publisher has done excellent work. There are relatively few typographical or grammatical errors. The book can be read in an evening.

Every physician should own this book and give it frequent re-readings. O. H.B.

Eye, Ear, Nose and Throat man in active practice and good standing, experienced and accomplished, desires location or association in New Mexico or Texas for the benefit of a warmer climate. Add. Box W, Southwestern Medicine.

The Dugdale Libel Suit.—Frederick Dugdale, M. D., of Lowell and Boston had his license to practice medicine in Massachusetts revoked April 18, 1929, for "gross misconduct in the practice of his profession." The Lowell (Mass.) Sun published an account of the hearing connected with the revocation proceedings and stated that the charges against Dugdale grew out of the alleged professional misconduct on his part in the treatment of a patient who subsequently died of cancer. As a result of this publication Dugdale brought suit against the publisher of the Sun, charging libel and demanding damages. The case came to trial and the jury brought in a verdict in favor of the newspaper. For some years Dugdale advertised as a "specialist" in "skin, blood and nervous diseases" and operated a mail order "rheumatism cure"; later he was one of the disciples of the Abrams cult. For some years Dugdale had his own "cancer cure." Still later, as the Koch "cancer cure" became a money-maker, Dugdale became a Koch disciple and in the libel suit the Koch "treatment" figured largely. (Jour. A.M. A., November 15, 1930, p. 1523.)

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* This change in corporate name was approved at a special meeting of the stockholders, December 10, 1930.

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Volume XV February, 1931 No. 2

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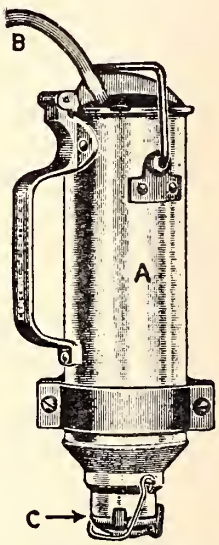

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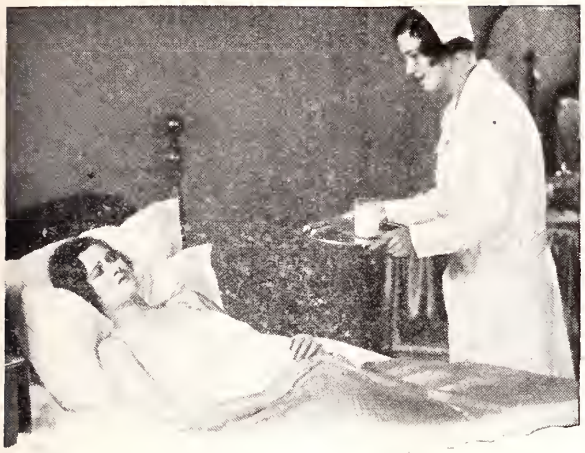

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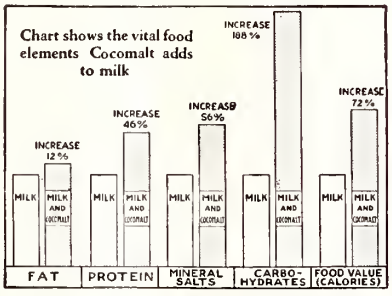

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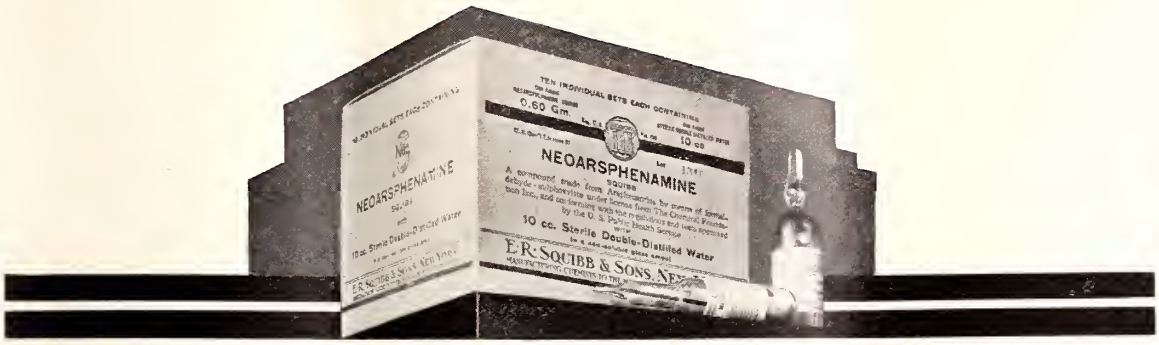

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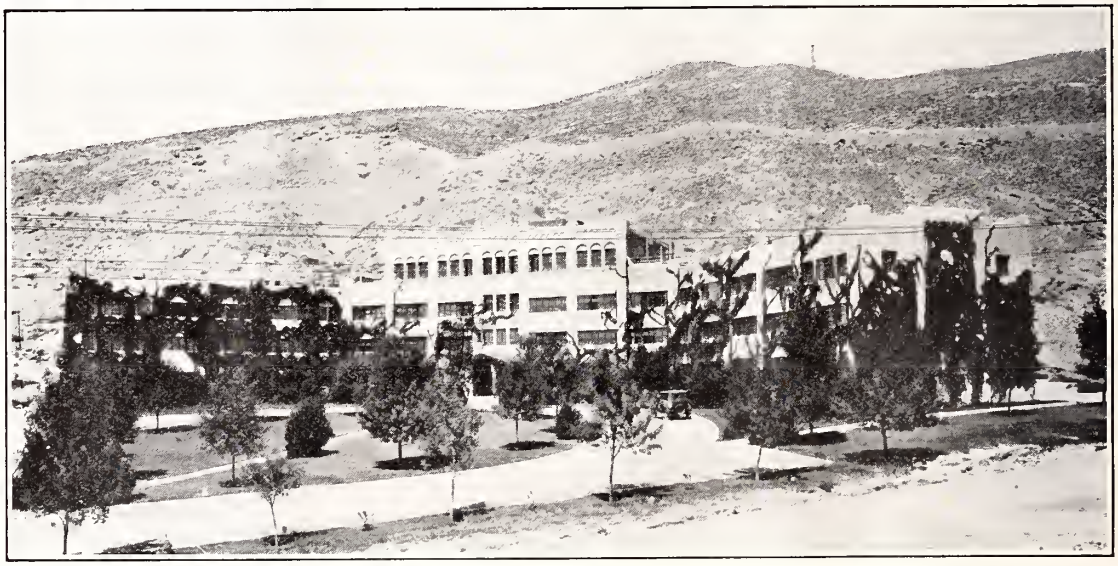

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ACUTE CRANIOCEREBRAL INJURIES

ALTON OCHSNER, M.D.
Department of Surgery, Tulane University
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(Read before the Annual Meeting of the Medical and Surgical Association of the Southwest, at El Paso, Texas, Nov. 6-8, 1930).

Because of the increasing incidence of acute craniocerebral injuries, the importance of an adequate understanding of these lesions is today emphasized more than previously. The present day conception of craniocerebral injuries differs considerably from that held prior to the last two decades. Prior to this time more attention was paid to the injury of the cranium, which was considered the all-important phase of craniocerebral injury, than to the injury of the brain, which is contained within the cranium. Even though at the present time the degree of cerebral injury is considered as the all-important factor in craniocerebral injuries, by most physicians, there is still the tendency among laymen and insurance companies, and, unfortunately, among certain of our fellow practitioners to place more stress on injuries of the rigid skull than injuries of the delicate cranial contents, the brain. This differentiation may appear to be a didactic point, because, as a rule, an injury which is severe enough to cause a fracture of the cranium will also produce cerebral injury. The symptoms, however, in such a case are due to the cerebral injury, and it is the cerebral injury which requires treatment much more than the lesion of the cranium. On the other hand, simple fractures of the skull do occur in which there is no cerebral injury, and, vice versa, extensive cerebral injuries may be present without any concomitant lesions of the cranium. In a series of autopsies reported by Vance, with special reference to fracture of the skull, brain lacerations were found even though a fracture of the skull was not present. In Vance's series of cases these were invariably produced by contrecoup violence, usually resulting from a fall. In a series of 441 cases of craniocerebral injuries reported by McClure and Crawford, 172, or 39 per cent, were associated with skull fracture.

ETIOLOGY

The etiology of craniocerebral injuries varies as time progresses, the automobile becoming relatively more frequent as the cause of craniocerebral injuries each year. Vullet found that the percentage of craniocerebral injuries admitted to the hospital in the "pre-automobile era" (in the years 1896 and 1897) was 0.86, whereas the percentage of these cases admitted in recent years (in the years 1927 and 1928) was 2.5, a relative increase in the number of craniocerebral injuries of about four times. In a series of 530 cases of craniocerebral injuries, reported by Crandon and Wilson in 1906, a fall was the etiological factor in 80 per cent, whereas, in McClure and Crawford's recent presentation, the automobile was responsible for 54.2 per cent of the injuries, falls and blows 20 per cent and 18.4 per cent, respectively.

CLASSIFICATION

I. Those with cerebral injury with or without cranial injury.
   1. Concussion
   2. Edema
   3. Contusion
   4. Laceration
   5. Hemorrhage
      a. Intradural
      b. Extradural

II. Those without brain involvement.
   1. Scalp wounds
   2. Skull fracture
      a. Vault

b. Base
c. Simple
(1) Linear
(2) Comminuted
d. Depressed
e. Compound

CONTUSION

Cerebral Injuries

There is considerable controversy at the present time among physiologists, clinicians, and pathologists concerning the use of the term, concussion. The controversy has arisen largely because of the indefiniteness of the term. If it is kept in mind that concussion is a clinical syndrome which is based upon no pathologic findings, but is based upon definite clinical symptoms and signs together with a typical clinical course, its use seems justifiable. Concussion is in reality a physiologic and not an anatomic lesion, in that no changes can be demonstrated in the cerebrum. Miller defines concussion as a condition which ic sharacterized by a "group of symptoms which are the result of a temporary inhibition of cortical function with or without stimulation or inhibition of one or more of the medullary centers, but which are not accompanied by pathological lesions."

Concussion is characterized by immediate and temporary unconsciousness, usually followed by headache, nausea, and occasionally vomiting, with rapid recovery from all symptoms. Whereas, most patients with concussion as a condition which is characconcussion recover, it not infrequently occurs that patients die without recovering consciousness and in whom at necropsy no gross lesions can be demonstrated. Supposedly, these individuals die from the same condition which produces concussion. In McClure and Crawford's cases, there were 351 cases of concussion, 257 of which were associated with skull fractures and ninety-four associated with no skull fractures. In a series of 507 autopsies reported by Vance, death from cerebral concussion occurred in 139, or 27.4 per cent: eighty-six died within a few minutes; thirty-four in from one to four hours; eleven in from five to ten hours; and in eight the duration was unknown.

The necessity of recognizing concussion of the brain is particularly important in order that proper therapy may be instituted. In all individuals in whom unconsciousness has occurred, irrespective of the length of time which it has persisted, a period of rest is imperative in order to prevent sequelae developing.

Edema

Edema of the brain has been recognized by pathologists for a long period of time. Its significance has not been appreciated by clinicians until relatively recently, since the introduction of the dehydration therapy, which is directed entirely against the "wet brain." LeCount and Apfelbach, in a study of 504 postmortem examinations of patients with craniocerebral injuries, state that the most frequent change in the brains of patients dying with fracture of the skull was traumatic edema of the brain. They describe the convolutions as being flat and the cerebral veins relatively empty and flat, the fluid in the leptomeninges being decreased. Apfelbach, two years later, in describing the edema of the cerebrum associated with craniocerebral injuries, states that it is a generalized edema and not a localized one associated with contusions. Edema in Apfelbach's series of cases was found most frequently in the brains of persons who died within the first two or three days after the accident. Green emphasizes the importance of cerebral edema and the necessity of its prompt treatment. He states that relatively slight injury to the cranium of individuals suffering from cardiorenal disease, is sufficient to produce cerebral edema. That the majority of symptoms in craniocerebral injury are the result of increased intracranial pressure, is accepted by most authorities today. This increase in intracranial pressure is, in by far the majority of cases, the result of cerebral edema, which in a relatively short time, produces a vicious circle, i.e., as the result of the increased intracranial pressure there is interference with the venous return, which hinders absorption of the cerebrospinal fluid. This produces an increase in the amount of cerebrospinal fluid. As the condition progresses the arterioles become compressed, producing a cerebral anemia.

Contusions

Contusion of the brain frequently follows trauma to the head. According to LeCount and Apfelbach, from their study of 504 postmortem examinations, the most frequent type of contusion is wedge-shaped in which the brain is infiltrated with blood for a depth of from 2 to 4 cm. over an area of from 4 to 5 cm. This type was found in 49.2 per cent of their series, in 73.3 per cent of which number it was a contrecoup injury. Contusions occurred in only 7.03 per cent of McClure and Crawford's cases, which, however, were observed clinically and not at necropsy. Contusion is of importance because it is frequently the cause of death. According to Vulliet, massive cerebral contusion was the

cause of death in 18.7 per cent of ninety-six cases observed by him, whereas, Trotter is of the opinion that contusion of the brain is probably the most common cause of death and that most of the symptoms produced by cerebral injury are the result of contusion. Symonds differentiates between a major and a minor type of contusion, the difference being one of degree. He considers clouding of the consciousness or stupor as a distinguishing feature of major contusions. Patients with minor contusion complain, however, of headaches, giddiness, and mental disability.

Lacerations

Laceration of the cerebrum represents a more extensive injury than contusion, even though its differtiation from contusion may be an artificial one, the difference being largely of degree. It is, however, deemed advisable to consider lacerations separately, especially in those cases in which there is definite tearing of the cerebral substance as contrasted with the bruising which occurs in contusion. According to Blahd, laceration is usually associated with or dependent upon fracture of the skull. In McClure and Crawford's series of 441 cases of craniocerebral injuries treated at the Henry Ford Hospital, there were fifty-four with laceration of the cerebrum, five without skull fracture, and forty-nine associated with fracture. In addition, there were five cases of laceration and hemorrhage, all associated with skull fracture. In 504 necropsy examinations of patients with craniocerebral injuries reported by LeCount and Apfelbach, severe laceration of the brain measuring 4 cm. in diameter and extending into the brain substance for from 4 to 5 cm. was found in sixty-four instances (slightly over 10 per cent), and all except eight were contrecoup injuries. Bagley believes that lacerations of the cortex are the result of direct force of the blow and may be associated with simple or compound fractures of the skull, but frequently occur without fracture of the skull. Vance classifies cerebral lacerations in skull fractures into direct lacerations and contrecoup lacerations, of which the contrecoup occurs more frequently than the direct. In LeCount and Apfelbach's and Vance's series, contrecoup laceration occurred as a rule when the skull, as a moving object, struck against a surface. This is explained by LeCount and Apfelbach by the fact that, in the motion of the head, the brain lags behind the more rapidly moving cranium and at the moment of the impact the brain is closer to the cranium opposite to the place where the violence is applied.

Hemorrhage

Hemmorhages associated with craniocerebral injuries are of two types, intradural and extradural. Associated with all cerebral injuries from the slightest contusion to the more extensive laceration, there are varying degrees of hemorrhage. Intradural hemorrhage occurs as a result of cerebral contusion or laceration, whereas extradural hemorrhage occurs as a result of injury to the middle meningeal artery, or rarely the lateral venous sinus.

Localized Hemorrhage. Because localized hemorrhage is so amenable to surgical therapy, the relative importance of this type of lesion probably has been overemphasized by surgeons. However, this type of lesion occurs much less frequently than do the other types of lesions above discussed. In ninety-six cases of craniocerebral injury reported by Vulliet, a localized hematoma occurred in only two instances. Massive hemorrhage associated with cerebral lacerations occurred in only five of McClure and Crawford's 441 cases of craniocerebral injuries. In Vance's 512 necropsies, 132 deaths were caused by subdural hemorrhage, the majority of the patients dying within twenty-four hours. In 132 cases the hemorrhage was produced by contrecoup lacerations in eighty-five cases, by direct laceration in twenty-one cases, and by contrecoup and direct laceration combined in twenty-one. Vance considered a case as having subdural hemorrhage whenever there was enough hemorrhage to produce compression of the brain. The average weight of the subdural hemorrhage was 61.1 grams. In 100 per cent, 73.8 per cent, and 84 per cent of fractures in the anterior, middle, and posterior fossae, respectively, in Vance's series, a subdural hemorrhage was found. The importance of subdural hemorrhage and the presence of blood in the spinal fluid has been emphasized by Bagley, both from an experimental and clinical viewpoint. Bagley found, experimentally, that blood in the subarachnoid space produced spasticity, sterile meningitis, and in young animals caused a dilatation of the lateral ventricles. Essick, prior to the work of Bagley, found a similar reaction of the meninges to the injection of laked blood with the production of a sterile meningitis. Subdural hemorrhages are of importance, not only because of the immediate symptoms which may be produced, but because of subsequent lesions. Fay and Winkelman have emphasized the importance of diffuse collections of cerebrospinal fluid over the cerebral cortex following subdural hemorrhage with resulting cerebral atrophy as the result of

pressure. In addition to the diffuse type of fluid collections following subnormal hemorrhage, the localized lesion first described by Virchow, which is a cystic formation on the base of a localized hematoma, may occur. Valuable contributions to the question of subdural hematoma or chronic hemorrhagic pachymeningitis have been made by Naffziger, Grant, and Rand.

Extradural Hemorrhage. Extradural hemorrhage is of less importance than subdural hemorrhage in so far as it occurs much less frequently. However, because of the marked increase in intracranial pressure which is produced by an extradural hemorrhage and because of the fact that it is especially amenable to surgical treatment, the possibility of an extradural hematoma should always be considered. The hemorrhage usually occurs from the middle meningeal artery or one of its branches. Extradural hemorrhage occurred in 39.4 per cent of the necropsy series reported by LeCount and Apfelbach. In only 52.2 per cent of this group, however, was the hemorrhage large enough to produce an appreciable compression of the brain. Of the large extradural hemorrhages, 70.1 per cent were associated with fracture of the middle fossa; 14.4 per cent were associated with the posterior fossa, 9.6 per cent were associated with fracture of the vault, 2.8 per cent fracture of the anterior fossa. In a series of 507 cases observed at necropsy and reported by Vance, extradural hemorrhage was described in only 106. Only sixty-one of these (12 per cent of the latter) however, were large enough to prove fatal through cerebral compression. The greatest number of extradural hemorrhages occurred, in Vance's series, between 30 and 40 years of age, which he believes is due to the fact that the dura is just adherent enough to the skull to allow laceration of the artery, but not adherent enough to prevent its separation from the bone. The extradural hemorrhage in Vance's series of sixty-one cases, originated in the posterior branch of the middle meningeal in twenty-five, the anterior branch in twelve, the main stem in four, in an unstated branch of the middle meningeal in fifteen, the anterior meningeal artery in one, and the lateral venous sinus in four.

INJURIES NOT INVOLVING THE BRAIN

Scalp Wounds

The importance of scalp wounds in acute craniocerebral injuries has not been sufficiently appreciated by the medical profession. Weaver emphasizes the proper care of scalp wounds and considers them as potential brain abscesses, as they are frequently the sites through which organisms can gain entrance to the cerebrum. Of 520 cases of cranial fracture reported by McCreery and Berry, in 216 there was an associated scalp wound, thirty-seven of which communicated with the fracture. Sixty per cent of 6,117 cases of skull fracture reported by Stuart, were associated with lacerations of the scalp, ninety-eight of which occurred in the frontal region, 130 in the parietal, eighty-eight in the occipital, and 55 per cent in the temporal area.

Fractures of the Skull

Fractures of the Vault. There is considerable variance among authors concerning the relative frequency of fractures of the vault. In general, however, it might be said that the statistics based upon necropsy investigations show a relatively low percentage of skull fractures involving the vault. In Vance's series of 512 cases, the vault was involved in only 6.7 per cent, whereas the vault and base were involved in 91.9 per cent. In LeCount and Apfelbach's series, the vault was involved in 9.9 per cent and the base in 89.8 per cent. In a clinical series, however, vault fractures occur more frequently than basal fractures, probably because the basal fratures are not diagnosed because of the difficulty in demonstrating basal fractures roentgenologically. In McClure and Crawford's series of 441 cases, 85.7 per cent were fractures of the vault and only 5.7 per cent were fractures of the base alone. Stewart states that 70 per cent of the linear fractures of the vault extend to the base by the shortest route. Vance explains the higher percentage of basal fractures as compared with those of the vault on anatomical grounds. The vault is stronger and is of even thickness with the exception of the temporal region. The base, however, is of irregular, flat construction, composed of heavy masses of bone weakened by thin plates. He believes, as does Stewart, that in most instances fractures begin in the vault and extend down to the base. They course along between the strong masses of bone and are directed toward the central part of the skull.

Basal Fracture. Basal fractures are frequently overlooked because of the difficulty in diagnosing the condition, largely because of inconstant and indefinite radiographic signs. As evidenced from necropsy examinations of Vance, LeCount and Apfelbach, basal fractures, either alone or associated with fractures of the vault, are the most frequent type of fracture of the skull. In Vance's series of cases, the posterior was involved in 34.8 per cent of the entire group, the middle fossa in 45.2 per cent, and the anterior fossa in 11.9 per cent. In LeCount

and Apfelbach's series, the anterior, middle, and posterior fossae were involved in 12.1, 32.9, and 35.3 per cent, respectively. Because basal fractures are apt to extend either into the nasal accessory sinuses or into the middle ear, the danger of secondary infection of the meninges is especially great, which point has been emphasized by Newell. Prognosis should be more guarded in basal fractures, not only because of the danger of infection, but because of associated injury to the cortical centers. Of thirty-nine fractures of the vault reported by Blahd, there was a mortality of 13 per cent, whereas in twenty cases of fracture of the base, there was a mortality of 65 per cent.

Of the various types of fractures, simple fractures occur most frequently. A simple fracture may produce no symptoms and be of no clinical significance. In fact, the only significant feature about a simple fracture of the skull is an associated cerebral injury. However, compound fractures are of definite significance because of the danger of the introduction of micro-organisms into the wound with subsequent infection. The proper care of compound fractures has been stressed by Cushing and others. Of thirty-seven operations performed by Thorning for 100 cases of acute craniocerebral injury, 51 per cent were performed for compound fractures. Compound fractures are, therefore, of surgical interest. Depressed fractures are also distinctly surgical and require operative intervention. The fragment, because of its direct pressure on the cervical corteix, may give rise to very definite symptoms. Bagley is of the opinion, however, that if the dura remains intact, the depression may be of little significance. Depression occurred in 198 of the 408 fractures of the vault reported by Stewart, and in only 5.1 per cent of 520 cases reported by McCreery and Berry.

DIAGNOSIS

The diagnosis of acute craniocerebral injuries is extremely important. A great deal can be learned from the history. Of paramount importance is the presence or absence of consciousness, as extensive cerebral injury is always associated with unconsciousness. McClure and Crawford believe that the degree and the duration of the primary unconsciousness serve as a fair index to the severity of the injury and probable subsequent course, except in hemorrhage and infection. One of the diagnostic features of concussion is immediate unconsciousness, which is invariably present. In McCreery and Berry's 520 cases of skull fracture, 178 were conscious and rational, twenty-three were stuporous, and 218 were in coma, on admission to the hospital. The clinical syndrome, as described by Kocher, of temporary unconsciousness followed by a lucid interval, later followed by unconsciousness, is characteristic of a rapidly increasing intracranial pressure of a severe degree, which is almost invariably associated with intracranial hemorrhage, usually from the middle meningeal artery. These cases are, however, relatively rare as compared with the large number of acute craniocerebral injuries. The pulse rate is of diagnostic value in acute craniocerebral injuries.. Newell places it second to the history. We now know that too much importance should not be placed in the pulse rate as there may be little alteration in the pulse early in the condition, changes in pulse rate being the result of considerable cerebral damage and indicating an advanced lesion. It is probably of more value as a prognostic agent than as a diagnostic agent. In Ritter's series of 349 cases of concussion of the medulla oblongata, there was a slightly increased pulse rate in 57.9 per cent. The pulse rate was normal in 40 per cent. There may be considerable variation in the pulse rate of a patient on his admission. This becomes self-evident when it is kept in mind that many patients with acute craniocerebral injuries are in shock when admitted to the hospital. Characteristically, the pulse in shock is of a small volume, and the rate is usually increased, which is dependent upon the condition of shock and not dependent upon the cerebral injury. In cases with marked increase in intracranial pressure as seen in hemorrhage from the middle meningeal artery, the pulse becomes definitely slowed due to compression of the medullary centers. This, however, represents an advanced lesion and is always associated with a marked increase in intracranial pressure. Associated with bradycardia is a definite increase in the blood pressure and unconsciousness. This symptom complex should never be waited for, and the diagnosis of increased intracranial pressure should be made before the symptoms present themselves.

Miller believes, from his experimental work on cerebral concussion, that the determination of respiratory rate is of a great deal of significance in cerebral concussion. He was able to demonstrate experimentally that the respiratory center was affected earliest of all the medullary centers by cerebral injury. In less extensive injuries the result was stimulation of the respiratory center, with an increase in respiratory rate as well as an increase in amplitude. As the injury becomes more severe, there results a paralysis of the respiratory centers, with

cessation of respiration. Miller believes that this respiratory paralysis is responsible for the sudden death in concussion. Newell states that, as the intracranial pressure becomes increased, respirations become labored and slowed.

Of primary importance, as far as diagnosis is concerned, Newell believes, is the temperature. In Besley's series of 1,000 cases of skull fracture, the average temperature of those patients who recovered was 100° F., whereas, that of those who died was 102° F. Symonds is of the opinion also that, early in cerebral injuries, the temperature is decreased. In considering temperatures in craniocerebral injuries the possibility of subnormal temperature as the result of shock must always be kept in mind.

Careful physical examination of the entire body, provided the patient is not in extreme shock, will yield considerable information concerning the nature and the extent of the cerebral injury. In such examination, special care should be paid the ears, nose and mouth, in order to determine whether or not there is evidence of escape of blood or spinal fluid. Hemorrhage from these natural orifices, unless there is an obvious wound from which bleeding may occur, is indicative of basal skull fracture. Ecchymosis may occur around the eyes or behind the ear or over the mastoid process (Battle's sign). The prognosis is much worse in those cases in which there is hemorrhage from the ear, nose and mouth, because of the possibility of infection gaining entrance to the meninges as a result of the compound fracture. Schuster states that middle ear fractures have a poor prognosis, because this portion of the temporal bone does not heal well, which may result in a permanent communication from the middle ear to the meninges. According to Davis, hemorrhage from both ears is an especially unfavorable sign, the mortality from his series being 66 per cent, whereas hemorrhage from one ear was associated with 39 per cent mortality. The danger of meningitis is especially great in those cases in which there was previous infection of the middle ear, mastoid process, or nasal accessory sinuses. In addition to hemorrhage and discharge of cerebrospinal fluid from the ear, Schuster states that in about 40 per cent of all head injuries there are other symptoms referable to the ear; i.e., impaired hearing, dizziness, and tinnitus. A careful neurological physical examination is extremely important, which is to be repeated frequently in order to observe the progress made by the patient. In McClure and Crawford's series and McCreery and Berry's series of cases, the seventh and eighth nerves are most often affected in the acute craniocerebral injuries, whereas in most authors' experiences, the sixth cranial nerve is the one most frequently involved. In McCreery and Berry's series of 520 cases of skull fracture, a negative neurological examination was found in 127, cranial nerve paralysis occurred in fifty-eight cases, and spinal nerve paralysis in eighty-eight. The superficial reflexes were decreased in fifty-eight; the deep reflexes were decreased in sixty-three and increased in seventy-nine. Abnormal reflexes were present in sixty-two.

Of extreme importance as regards the extent of injury, the progress of the case, and the prognosis, are the eye manifestations. Changes in the pupil are of great diagnostic and prognostic significance. According to Lyerly, the size of the pupil normally seldom varies in the two eyes. He quotes Barrie, who found, on examination of 326 recruits with apparently normal eyes, an inequality of the pupils in about 10 per cent. Characteristic of pupillary changes in acute cerebral injury is the variation seen on repeated and frequent examination. McClure and Crawford recommend frequent eye examinations, because of the frequent changes which are apt to and do occur in severe acute craniocerebral injuries. In their series of cases, the pupil was dilated on the side of the lesion, and in all patients with dilated and fixed pupils a fatality resulted. Holman and Scott state that a unilateral dilatation and fixation of the pupils almost invariably occurs on the side of the lesion, and sometimes in cases of progressively increasing cerebral compression from hemorrhage.

The eye manifestations are extremely important as regards prognosis. Of 610 cases of fracture of the skull observed by Blakeslee, 78 per cent showed eye signs. Of those with widely dilated and fixed pupils, 94.5 per cent died. Of those with widely dilated pupils which reacted to light, 30 per cent died. Of those with unilateral dilated and fixed pupils, 6 per cent died. Of those with unequal pupils, however, without a great deal of dilatation or contraction, 44 per cent died. Of those with pupils contracted and fixed, 70 per cent died. Nicols believes that fixation of the pupil is much more serious than inequality. In fifty-four cases with a nonreacting pupil with fracture in the vault, forty-seven died, and in twenty-four cases in which the pupil did not react, all died. In Walton's series, thirty-nine out of fifty fatal cases of acute craniocerebral injury had fixed pupils. All of McClure and Crawford's patients with dilated and fixed

pupils died. Nystagmus was observed in fifty-three patients of Stewart's 617 fractures of the skull, of whom thirty died and twenty-three recovered. Nystagmus was toward the injured side in twenty-six cases and toward the opposite side in eleven cases. value of eye-ground examination in cranio- Of the 610 cases of fracture of the skull reported by Blakeslee, only thirteen, about 2 per cent, showed nystagmus. Four of these patients, however, died.

There is some controversy concerning the cerebral injury. In Blakeslee's series of cases, papillitis with slight swelling of the vessels, together with slight edema and obliteration of the disc margin, was recorded in only eight of the 610 cases of fracture of the skull. Thirty-nine per cent of these patients, however, died. Thorning is convinced that eye-ground examinations are of relatively little value. In four of the twelve cases examined by him, the fundic changes were definite, but in these cases the clinical signs were so pronounced that the condition of the optic disc did not influence the treatment. Other cases were found in which the signs were indefinite, from the standpoint of eye grounds, but in which other signs were very definite and in which, at operation, lesions producing increased intracranial pressure were present. Gunn, on the other hand, believes that early changes in the optic disc are of value. He states that there is no noticeable change within six hours following injury. The first change is an increase of the retinal vein, which is accompanied by a hyperemia of the disc and followed shortly by an edema of the nasal half of the disc. According to Gunn and Cohen choked disc is never seen in cases of acute craniocerebral injury. In Cohen's series of the twenty-four fatal cases the fundus was normal in eight, neural retinitis in three, mild papillitis, bilateral, in three, mild papillitis, unilateral, in one, moderate papillitis, one, retinal hemorrhage, two, no examination, five; the fundic changes in the nonfatal cases, normal thirty-five, unilateral primary atrophy three, mild papillitis three, unknown, seven.

Blood Pressure

To Kocher belongs the credit for calling attention to the so-called stage of compensation in which, as the result of anemia of the medulla, produced by a rapidly increasing intracranial pressure, there is a blood pressure rise. Up until the last decade, considerable dependence was placed upon blood pressure readings in cases of acute craniocerebral injuries. It is now realized, however, by most clinicians, that little dependence should be placed upon blood pressure and that when blood pressure changes do occur as the result of cerebral compression, considerable damage has been done to the cerebrum and medullary centers. Blood pressure readings are, of course, invaluable in the diagnosis and in determining the progress in cases of acute craniocerebral injury in which there is an associated shock. Bower found that there is no constant direct relationship between the cerebrospinal pressure and the blood pressure. Holbrook has observed many cases in which there was marked increased intracranial pressure where there was no significant blood pressure change. The unreliability of placing too much dependence on blood pressure in the diagnosis of acute craniocerebral injury has recently been emphasized by Gage, and, aside from the condition of shock, it would probably be better if blood pressure readings were not made. By this statement, I do not wish to decry the value of blood pressure readings in general. However, there is danger that, if blood pressure determinations are made, too much importance will be placed upon their value by immature house officers, and more difficult, yet more valuable, diagnostic procedures will be omitted.

The Spinal Fluid

Of greatest importance from a diagnostic and prognostic point of view, is the determination of the cerebrospinal fluid pressure, as well as the character of the fluid. As the immediate symptoms in acute craniocerebral injuries are the result of increased intracranial pressure, except in those cases where there has been extensive injury of the cerebrum, a knowledge of the cerebrospinal fluid pressure would be of great value as regards diagnosis, prognosis and treatment. Jackson, in 1922, reported his results in 100 cases of acute cranial injuries in which spinal fluid pressure determinations were made and in which spinal tap was used therapeutically. Cerebrospinal fluid pressure was above 30 mm. of mercury in 14 per cent, the highest reading being 60 mm. In 34 per cent, the pressure was between 20 and 30. In 44 per cent, the pressure varied between 10 and 20. In a series of 316 cases admitted to the Boston City Hospital and analyzed by Munro, lumbar puncture was performed and manometric readings of the cerebrospinal fluid pressure were made in thirty-six. In the cases that recovered, the highest pressure recorded was 60 mm. of mercury, the lowest was 4, and the average 16. In seven fatal cases the highest pressure was 100 mm. of mercury, the lowest 10, and the average 39. In comparing the differences in cerebrospinal pressure in cases of craniocerebral injuries between the white

and colored races, Weaver found that, among 300 cases occurring in the white race, there were 190 cases of hypertonicity, as compared with 218 cases among 300 occurring in the colored. Connors believes that a diagnostic lumbar puncture should be made routinely in cases of acute craniocerebral injuries. Holbrook and Symonds are of the same opinion. McClure and Crawford are of the opinion that lumbar puncture should be done only when there is a definite indication. They state that it should be done slowly and cautiously. In their series of 441 cases, lumbar puncture was performed in 148 cases, or 33.6 per cent: 47.3 per cent had pressures under 10 mm. of mercury; 39.8 per cent, from 11 to 20; 10.8 per cent, from 21 to 30; and 2 per cent, above 30 mm. of mercury. In Munro's series of cases, the comparison of the spinal fluid pressures in the fatal and nonfatal cases reveals that the average intracranial pressure is nearly two and one-half times higher in the fatal cases than in the nonfatal. Even though it is desirable to perform a lumbar puncture and determine the amount of cerebrospinal fluid pressure as soon as possible after an acute craniocerebral injury, this procedure should not be performed in the presence of shock, which is generally accepted by most authors. Aside from the fact that patients in shock bear any operative manipulation poorly, lumbar puncture performed at this time is of relatively little diagnostic aid, as, even in those cases in which there is extensive cerebral injury, the cerebrospinal fluid pressure is apt to be normal or decreased, because of the decreased arterial and venous pressure. Aside from the determination of the cerebrospinal fluid pressure, a knowledge of the character of cerebrospinal fluid is of great value for prognosis and treatment in craniocerebral injuries. In 39.9 per cent of the 148 cases in which a lumbar puncture was done in McClure and Crawford's series, the spinal fluid was bloody, and it was clear in 60.1 per cent; 83.3 per cent of the cases in which death occurred showed bloody fluid. Aside from indicating the severity of the lesion, blood within the cerebrospinal fluid is of importance as far as subsequent sequelae are concerned. Essick found experimentally that, when laked blood was injected into the subarachnoid space, there occurred within six hours a definite sterile meningitis. Bagley was able to demonstrate experimentally that blood injected into the subarachnoid space of dogs produced marked systemic changes. Immediately after the injections the animals became spastic and recovered from the narcosis slowly. In the adult animals there frequently followed convulsive changes and frothing of the mouth. They were hypersensitive and irritable and the nutrition was poor. In the puppies the most startling effect was noted, in that there was a diminished activity and a poor development. Late in the course of the meningeal reaction changes in the cortex were observed. In six out of nineteen puppies in which blood was injected into the subarachnoid space and on which autopsies were performed, a definite dilatation of the ventricles was found. Fay has described a type of cerebral atrophy which is due to collections of fluid in the subarachnoid space, the result of subarachnoid hemorrhage.

In contrast to the above mentioned authors, there are certain authorities who believe that lumbar puncture is dangerous and should not be performed in cases of craniocerebral injury in which an increased intracranial pressure is suspected. These authorities believe that, because of the sudden decrease in the intraspinal pressure, the herniation of the medulla into the foramen magnum may occur. McClure and Crawford believe that lumbar puncture should be done only in selected cases and the fluid should be withdrawn slowly and carefully. Henschen is of the opinion that lumbar puncture is dangerous in increased intracranial pressure and should never be used. Besley believes that lumbar puncture is not free from danger. Sachs is also definitely opposed to lumbar puncture in acute craniocerebral injury.

Roentgen Ray

The relative importance of roentgenography in the diagnosis of craniocerebral injuries is a matter of controversy. It may be stated, however, that all cases of acute craniocerebral injury should have roentgenograms of the skull for two reasons: (1) in order to eliminate the possibility of a depressed fracture, a knowledge of which is absolutely essential in order that the correct and proper therapy be instituted; (2) because of the high regard which the laity and the legal profession have for cranial fractures, a failure to obtain a roentgenogram in a suspected cranial lesion, especially in a medico-legal case, would indicate, at least in the eyes of a jury, improper care of the patient. It must not be forgotten, however, that, aside from depressed fractures, the most important lesion in craniocerebral injuries is not the injury to the cranium but the cerebral lesion. Roentgenograms, also, are not infallible, even in those cases of cranial fracture, as illustrated by the following studies: In Stewart's series of 617 cases of cranial fracture only 73.1 per cent of the

fractures showed positive x-rays, and 26.8 per cent were negative. In the latter group, 10.7 per cent showed linear fractures at the time of operation and 12.3 per cent were diagnosed as basal fractures by other signs and symptoms, 11.6 per cent were found to have basal fractures at postmortem examination, 2 per cent proved to be fractures of the vault, which were slightly depressed when the wound was explored.

TREATMENT

Immediate Treatment

Within the past decade the general trend has been toward conservatism in the treatment of acute craniocerebral injuries. Prior to this time, because of the relatively greater importance attached to localized intracranial hemorrhage, operative procedure for the relief of intracranial tension was practiced rather frequently. At the present time it is realized that, in by far the greater majority of cases, the increased intracranial tension is the result of edema which is dependent upon the cerebral trauma.

The difference in treatment practiced today from that practiced a decade ago is illustrated by the following figures: Sharp operated upon about 30 per cent of his craniocerebral injuries; Welinsky, 24 per cent; Heuer, 22.7 per cent; Naffziger, 20 per cent; whereas Crawford and McClure, in their series of 441 cases, operated upon only 4.3 per cent of the cases. It is now generally accepted that, in the majority of cases of craniocerebral injury, conservative treatment is not only less dangerous but is more efficacious than operative interference.

As many patients with acute craniocerebral injuries are in surgical shock when first seen by the surgeon, it is imperative that the shock be treated before the institution of any other therapy. The patient should be immediately put in bed, external heat should be applied, and hot fluids administered. The administration of hypertonic glucose solution intravenously is justifiable, because, not only is it of value in combating shock, but it is also of value in preventing and combating cerebral edema. Any external wound should be cared for as soon as possible, although undue manipulation is to be avoided until the patient reacts from shock. As soon as the patient's condition permits, an examination—especially a neurological examination—should be made, especial care being paid to the cranial nerves, pupillary reflexes, evidences of discharge of blood or spinal fluid from ears, nose or mouth, evidences of paralysis of weakness. Even though these findings may not be abnormal, a record is extremely important in order to determine whether any deviation from normal subsequently occurs. Lumbar puncture should be performed as soon as the patient recovers from shock, both as a diagnostic and therapeutic procedure. A cerebrospinal fluid pressure higher than 10 mm. of mercury should be considered abnormal and enough fluid should be removed cautiously to decrease the pressure above 10 mm. of mercury by one-half; i.e., if the cerebrospinal pressure is 20 mm. of mercury enough fluid should be withdrawn to reduce the pressure to 15 mm. of mercury. Roentgenograms of the skull should be made as soon as the patient recovers from shock, in order to determine the presence of a depressed fracture. As recommmended by Weaver and Davis, in those cases in which there is discharge of blood or cerebrospinal fluid from the ears, no attempt should be made to irrigate the external auditory meatus, because of the danger of introducing infection into the meninges. However, the external auditory meatus should be plugged with sterile cotton, possibly saturated with alcohol. In those cases in which there is a compound fracture or in which there is an injury to the scalp without injury to the underlying bone, active therapy is of utmost importance. As emphasized by Cushing during the World War, in compound fractures, especially those following gunshot injuries, the treatment consists of debridement, removal of the traumatized cranial tissue by means of suction, following which the wound is tightly closed. Weaver is especially emphatic in emphasizing the necessity of debridement because he considers wounds of the scalp as potential brain abscesses. The frequently employed use of morphine and other narcotics is mentioned only to be condemned. In acute craniocerbral injuries such drugs should never be used unless the patient is uncontrollable. Because of their depressing effects on the cerebrum, symptoms may be masked. Weaver also believes that morphine should not be used for severe headache, because the drug depresses respiration. McClure and Crawford state: "In the early stages we do not use morphine as a sedative or homatropine as a mydriatic for fear of masking important signs. Bagley prefers coal tar products and bromides to morphine for the control of restlessness and delirum.

Repeated Lumbar Punctures

As early as 1905, Quincke emphasized the importance of the determination of the cerebrospinal fluid pressure and stated that the best results in the treatment of these conditions was by lumbar drainage. Rawling was of the opinion that, in spite of the apparent advantage of lumbar drainage, it was of little value in reducing intracranial pres-

sure. More recently, however, due largely to the work of Jackson and Munro, the advisability of lumbar puncture in the treatment of acute cerebrospinal injuries has been especially stressed. In 1922 Jackson reported 100 cases of acute cranial injury in which cerebrospinal fluid pressures were determined and which were treated by repeated lumbar punctures. He advocated performing lumbar puncture at intervals of six to twenty-four hours. Munro treated sixty cases of acute craniocerebral injury by lumbar puncture alone with only seven deaths, a mortality of 12 per cent. Bagley stresses the importance of not performing spinal drainage in those cases in which pure blood is present within the subarachnoid space. He believes that in this type of case it is better to wait until the blood becomes mixed with the cerebrospinal fluid before attempting spinal drainage, as the prognosis in the former case is very bad. Worster-Drought, McCreery and Berry believe that repeated spinal drainage is of more value than the use of hypertonic solutions in the severe cases. They have not hesitated to remove slowly enough fluid to lower the spinal fluid pressure down to 10 mm. of mercury. In none of their cases did this require the removal of more than 50 c.c. of fluid. Green also believes that enough spinal fluid should be removed to decrease the spinal fluid pressure to 10. Holbrook, McClure and Crawford are less radical and remove smaller amounts and do not decrease the cerebrospinal fluid to such a degree. Repeated lumbar punctures are of value in acute craniocerebral injuries, not only because the cerebrospinal fluid pressure is decreased, but also because of the removal of any blood which may be present in the subarachnoid space. As mentioned above, blood produces a sterile meningitis and is frequently responsible for late sequelae.

Hypertonic Solutions

In 1919 Weed and McKibben demonstrated that cerebrospinal fluid pressure and brain bulk could be influenced by the intravenous injection of hypotonic and hypertonic solutions. They showed that experimentally, cerebrospinal fluid pressure could be markedly decreased by the intravenous injection of hypertonic solutions. Haden was the first to apply this principle clinically. He employed hypertonic glucose solution intravenously in the case of cerebrospinal meningitis, with good results. Cushing and Foley then demonstrated that cerebrospinal fluid pressure could be decreased by intravenous injection of hypertonic solutions. Sachs and Belcher were able to relieve a patient with a brain tumor and with increased intracranial pressure by the intravenous injection of hypertonic sodium chloride solution. Foley and Putnam, in 1920, demonstrated that the introduction of hypertonic solution into the intestinal tract would produce similar but less marked results. Sachs and Malone, working experimentally, were able to decrease the brain volume in dogs by the intravenous injection of a 30 per cent chloride solution. Within ten minutes after the administration a change was noted, and a maximum was reached in forty-five to sixty minutes. They found that the rate of injection could not exceed 1 c.c. per minute, otherwise there would be a fall in blood pressure and respiratory disturbances. Dowman recommended the intravenous use of hypertonic solutions in increased intracranial pressure and also advised the repeated administrations of magnesium sulphate by mouth. Fay, in 1923, advocated the use of magnesium sulphate by rectum and states that the effect becomes pronounced within an hour. He employs one and one-half ounces of magnesium sulphate in eight ounces of water. He believes that this is better than the administration of sodium chloride by mouth in that there is no vomiting and no distress. He also states that hypertonic chloride solution is dialyzable and an increased chloride content of the blood leads to secondary tissue retention, with a rapid return of symptoms after its administration. Magnesium sulphate, however, is nondialyzable and produces a rapid dehydration of the blood plasma by excretion of fluid into the intestinal wall. He was able to demonstrate experimentally that magnesium sulphate was about twice as efficient as a dehydrating agent in the intestine as was sodium chloride. He emphasizes the importance of restricting fluids during the dehydration therapy, but warns against "over dehydration." Howe, employing a large number of salts—namely, sodium bicarbonate, sodium sulphate, sodium chloride, calcium lactate, calcium chloride, sodium citrate, sodium tartrate, dextrose—found that dextrose was the only one of the group that was nontoxic and produced a satisfactory decrease in the cerebrospinal fluid pressure. Glucose, in a 50 per cent solution, is the best dehydrating agent which can be employed intravenously. Its action, though slightly less prompt than that of hypertonic sodium chloride solutions, is, however, more lasting. Its intravenous use is also much safer than that of the hypertonic sodium chloride solutions. From 50 to 100 c.c. of a 50 per cent glucose solution may be administered intravenously every six to eight hours, depending upon the se-

verity of the cerebral edema. Of immense value in the treatment of acute craniocerebral injury is the administration of magnesium sulphate either by rectum or by mouth. Dowman, in 1922, recommended the use of magnesium sulphate both by mouth and by rectum in cases of increased intracranial pressure. Since this time it has been used extensively by many authors, especially the rectal administration, which has the advantage that the patient is little disturbed, its effect is prompt, and there is no danger. As mentioned above, Fay has definitely shown that magnesium sulphate in the intestine is a more powerful dehydrating agent than any one of the other salts.

In contrast to the usual condition of cerebrospinal fluid hypertension, which as a rule is associated with acute craniocerebral injuries, there may occur a hypotension, as first described by Leriche in 1920. In the treatment of this condition, Leriche recommends the intravenous injection of hypotonic solution or distilled water. Henschen, Mallet-Guy, and Etienne-Martin report good results obtained from the use of hypotonic solutions in these cases. The latter authors believe that, as opposed to hypertensive disturbances, which produce symptoms of a relatively short duration, the hypotensive disturbances are causes of prolonged complications, and distressing sequelae. Persisting headaches—especially occipital,—asthenia, and a state of nervous irritability, are frequently present.

Operative Treatment

Even though at the present time the treatment of acute craniocerebral injuries consists largely of conservatism, there are certain definite cases in which operation is indicated. Operation is imperative in those cases with scalp wounds, compound or depressed skull fractures, and localized intracranial hematomata. Cases with extradural hemorrhage or even intradural localized hematomata with focal symptoms and signs should be operated upon in order to evacuate the blood clot and also to secure hemostasis. Most authors believe that contusion of the brain should not be operated upon. However, Arnaud and Albert Cremieux are of the opinion that localized ecchymosis of the cerebral cortex, surrounded by an area of edema, should be given the advantage of a decompressive operation. Bagley is emphatic in stating that operative procedures should not be performed in cases of hemorrhage unless a clot has formed. If a clot is not formed the operation will favor further bleeding. In those cases in which it is impossible to control the increased intracranial pressure by spinal tap and the intravenous use of hypertonic solutions, decompression is indicated in order to relieve the cerebral pressure. Bower believes that if, after the second aspiration of spinal fluid, there is an increase in the cerebrospinal fluid pressure of 20 mm. of mercury and no improvement has occurred, operation is indicated.

BIBLIOGRAPHY

1. Apfelbach, C. W.: Studies in Traumatic Fractures of the Cranial Bones, Arch. Surg. 4:434, 1922.

2. Arnaud, M. and Albert-Crémieux: Closed Trauma of the Skull, with Remarks on Possibility of Localizing and Treating Cerebral Injuries, Rev. Neurol. 1:1099, 1929.

3. Bagley, Charles: Blood in the Cerebrospinal Fluid: Resultant Functional and Organic Alterations in the Central Nervous System, Arch. Surg. 17:18, 1928.

4. Idem: Blood in the Cerebrospinal Fluid: B. Clinical Data, Arch. Surg. 17:39, 1928.

Idem: Grouping and Treatment of Acute Cerebral Traumas, Arch. Surg. 18:1078, 1929.

5. Besley, F. A.: A Contribution to the Subject of Skull Fractures, J.A.M.A. 66:345, 1916.

6. Blahd, M. E.: Fracture of the Skull and Its Complications, Am. J. Surg. 37:33, 1923.

7. Blakeslee, E.: Eye Manifestations in Skull Fractures, Arch. Ophth. 2:566, 1929.

8. Bower, J. O.: Management of Injuries to the Cranium and Its Contents, Ann. Surg. 78:433, 1923.

9. Cohen, Martin: The Value of Eye Manifestations Complicating Fractured Skull, Arch. Ophth. 46:258, 1917.

10. Connors, J. F.: Treatment of Skull Fractures, Trans. Am. Surg. Assn. 45:427, 1927.

11. Crandon, L. P. G.; and Wilson, L. T.: Fracture of the Base of the Skull, Am. Surg. 44:823, 1906.

12. Crotter: Clinical Types of Clinical Injuries, Oxford Med. 6:122, 1923.

13. Cushing, Harvey: Notes on Penetrating Wounds of the Brain, Brit. M. J. 1:221, 1918.

14. Davis, Edward: Injuries of the Ear Arising from Fractures of the Skull, Brit. M. J. 2:741, 1928.

15. Dowman, Charles E.: Management of Head Injuries with Real or Potential Brain Damage, J.A.M.A. 79:2212, 1922.

16. Essick, C. R.: Formation of Macrophages by the Cells Lining the Arachnoid Cavity in Response to the Stimulus of Particulate Matter, Contributions of Embryology, No. 42, Carnegie Institute of Washington, 272:377, 1920.

17. Fay, Temple: The Administration of Hypertonic Salt Solutions for the Relief of Intracranial Pressure, J.A.M.A. 80:1445, 1923.

Idem: Comparative Values of Magnesium Sulphate and Sodium Chloride for the Relief of Intracranial Tension, J.A.M.A. 82:766, 1924.

Idem: The Control of Intracranial Pressure, J.A.M.A. 84:1261, 1925.

Idem: Generalized Pressure Atrophy of Brain Secondary to Traumatic and Pathologic Involvement of Pacchionian Bodies, J.A.M.A. 94:245, 1930.

18. Fay, Temple; and Winkelman, N. W.: Widespread Pressure Atrophy of the Brain, and Its

Probable Relation to the Function of the Pacchionian Bodies and the Cerebrospinal Circulation, Am. J. Psychiat, 9:667, 1930.

19. Foley, F. E. B.: Clinical Use of Salt Solution in Conditions of Increased Intracranial Tension, Surg., Gynec., Obst. 33:126, 1921..

20. Foley, F. E. B.; and Putnam, T. J.: Effect of Salt Injection on Cerebrospinal Fluid Pressure and Brain Volume, Am. J. Physiol. 53:464, 1920.

21. Gage, I. M.: Acute Traumatic Craniocerebral Injuries, Am. J. Surg. (New Series) 6:64, 1929.

22. Grant, F. C.: Chronic Subdural Hematoma, Ann. Surg. 86:485, 1927.

23. Green, T. M.: Management and Treatment of Brain Injuries, Internat. Clin. 2:239, 1924.

24. Gunn, M. L.: Eye Observations in Fracture of the Skull and Severe Head Injuries, Kentucky M. J. 27:119, 1929.

25. Haden, R. L.: Therapeutic Application of Alteration of Brain Volume by Injection of Glucose, J.A.M.A. 73:983, 1919.

26. Henschen, C.: Ueber die Ursachen des postkommotionellen und postkontusionellen Hirndruckes, insbesondere über Hirnodem, Hirnschwellung und Hirnverkleinerung nach Schadelverletzungen, Zentralbl. fur Chir. 54:3169, 1927.

27. Heuer, G. J.: Fracture of the Skull, J.A.M.A. 82:1467, 1924.

28. Holbrook, F. R.: The Diagnosis and Management of Head Injuries, J.A.M.A. 83:489, 1924.

29. Holman, Emil; and Scott, W. I.: Significance of Unilateral Dilatation and Fixation of Pupils in Severe Skull Injuries, J.A.M.A. 84:1329, 1925.

30. Howe, Hubert S.: Reduction of Normal Cerebrospinal Fluid Pressure by Intravenous Administration of Hypertonic Solutions, Arch. Neurol & Psychiat. 14:315, 1925.

31. Jackson, Harry: The Management of Acute Cranial Injuries by the Early Exact Determination of Intracranial Pressure and Its Relief by Lumbar Puncture, Surg., Gynec., Obst. 34:494, 1922.

32. Kocher: Cited by Bower, Ref. 8.

33. LeCount, E. R.; and Apfelbach, C. W.: Pathologic Anatomy of Traumatic Fractures of Cranial Bones and Concomitant Brain Injuries, J.A.M.A. 74:501, 1920.

34. Leriche, R.: De l'hypotension du liquide céphalo-rachidien dans certaines fractures de la base due crane et de son traitement par l'injection de sérum sons la peau, Lyon Chirurg. 17:638, 1920.

Idem: Les syndromes d'hypotension du liquide céphalo-rachidien, Medicine, 4:37, 1922.

35. Lyerly, J. G.: Significance of Dilated Pupil in Acute Injuries, Virginia M. Month. 55:26, 1928.

36. McClure, R. D.; and Crawford, A. S.: Management of Craniocerebral Injuries, Arch. Surg. 16:451, 1928.

37. McCreery, J. A.; and Barry, F. B.: Study of 520 Cases of Cranial Fracture, Ann. Surg. 88:890, 1928.

38. Mallet-Guy, P.; and Etienne-Martin, M.: Two Cases of Post-Traumatic Hypotension of the Cerebro-Spinal Fluid, Lyon Medical. 143:773, 1929.

39. Miller, G. G.: Cerebral Concussion, Arch. Surg. 14:891, 1927.

40. Munro, Donald: Therapeutic Value of Lumbar Puncture in the Treatment of Cranial and Intracranial Injury, Boston M. and S. J. 193:1187, 1925.

41. Naffziger, H. C.: Head Injuries—Introductions for Surgical Treatments, S. Clin. N. Am. 3:699, 1923.

42. Newell, E. T.: Diagnosis and Treatment of Cranial Fractures, J. South Carolina M. A. 25:461, 1929.

43. Nicols: Med. and Surg. Rep. Boston City Hosp. , 1895. Cited by Stewart, Ref. 53.

44. Quincke, E.: Diagnosis and Therapeutics of Lumbar Puncture, Deut. med. Wchnschr. 31:1825, 1905.

45. Rand, C. W.: Chronic Subdural Hematoma; report of 7 cases, Arch. Surg. 14:1136, 1927.

46. Rawling, L. B.: Fracture of the Skull, Lancet 1:973, 1904.

Rawling, L. B.: Surgery of the Skull and Brain, London, H. Frowde, 1912.

47. Ritter, A.; and Strebel, K.: Neue Beitrage zur Kenntnis der Commotio medullae oblongatae (Ritter), der Commotio cerebri s. s. und der Contusio cerebri diffusa, Monatsch. f. Unfallh. 35:369, 419, 1928.

48. Sachs, Ernest: Fractures of the Skull, Surg. Clin. N. A. 2:1571, 1922.

49. Sachs, E.; and Belcher, G. W.: The Use of Saturated Salt Solution Intravenously During Intracranial Operations, J.A.M.A. 75:667, 1920.

50. Sachs, E.; and Malone: J. Physiol. 55:277, 1921. Cited by Howe, Ref. 30.

51. Schuster, F. P.: Head Injuries with Ear Symptoms, Southwest. Med. 11:116, 1927.

52. Sharp, William: Observations in the Diagnosis and Treatment of Brain Injuries in Adults, J. A. M. A. 66:1536, 1916.

53. Stewart, J. W.: Fractures of the Skull, J.A. M.A. 77:2630, 1921.

54. Symonds, C. P.: Cerebral States and Head Injuries, Roy. Medico-Psychological Assn., Brit. M. J. 2:302, 1928.

Idem: Differential Diagnosis and Treatment of Cerebral States Consequent Upon Injuries, Brit. M. J. 2:829, 1928.

55. Thorning, W. B.: Cranial Injuries, Texas State J. Med. 25:646, 1930.

56. Trotter, W.; Evolution of Surgery of Head Injuries, Lancet 1:169, 1930.

57. Vance, B. M.: Fractures of the Skull, Arch. Surg. 14:1023, 1927.

58. Virchow, R.: Hematoma Durae Matris, Verhandl. d. phys.-Med. Gesellsch. zu Wurzburg 7:134, 1857.

59. Vulliet, H.: Traumatism of the Skull, Thirty Years Ago and Now, La Presse Medicale 37:1313, 1929.

60. Walton, George L.: Fracture of the Base of the Skull, Ann. Surg. 40:654, 1904.

61. Weaver, J. C.; The Anthropology of Negro: Its Bearing on Mortality in Head Injuries; Review of 600 cases, Surg., Gynec., Obst. 50:499, 1930.

62. Weed, L. H.; and McKibben, P. S.: Pressure Changes in Cerebrospinal Fluid Following Intravenous Injection of Solutions of Various Concentrations, Am. J. Physiol. 48:512, 1919.

63. Wilensky: Fracture of the Skull with Special Reference to Its Neurological Manifestations, Ann. Surg. 70:404, 1919.

64. Worster-Drought, C.: Discussion of Cerebral States and Head Injuries, Brit. M. J. 2:302, 1928.

SARCOMA OF THE STOMACH

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Albuquerque, N. M.

Up to 1927 there had been reported in the world literature 265 cases of primary sarcoma of the stomach. Not one of these cases had been diagnosed previous to operation. Various reasons are given to account for the inability to diagnose this condition correctly. None of them sound very convincing. The final diagnosis of any growth depends upon the microscope and, as there is no characteristic clinical picture of primary sarcoma of the stomach, the best one can do is to diagnose a probable malignancy.

The following case is, perhaps, as characteristic as any reported and clearly demonstrates the impossibility of making other than a diagnosis of probable malignancy in a patient suffering from vague gastric distress over a period of several years.

Mr. X consulted me in January, 1930, regarding a "chronic bilious condition," as he termed it. His history is as follows: The patient is a single man, 52 years of age. His family history is negative and his past history is irrelevant with thhe exception of pulmonary tuberculosis diagnosed in 1916. At that time he came west for his health and made an uneventful recovery as far as his chest condition was concerned. With regard to his present difficulty he states that for "several years" he has suffered from "billious attacks." He emphatically states that he has never suffered from any pain, has never been jaundiced, has never noticed any edema of his extremities. His only complaint manifests itself in "spells of being dizzy, with lots of gas." As far as could be determined this state of affairs had been going on for at least five years.

Examination of the patient revealed a thin, anemic individual weighing 110 pounds. He states that his average weight is 125 pounds. Blood pressure was 85/60. Hemoglobin was 50 per cent. Red cells numbered 3,900,000. White cells, 3000, with normal differential count. The blood Wassermann was negative. The urine examination was negative and the stool examination was also negative. Physical findings were negative except for a few coarse rales on both sides. The heart was normal, as were all reflexes. The prostate was slightly enlarged, soft, not tender, and fluid from same revealed a normal secretion.

It was explained to the patient that he might be suffering from one or more of a variety of conditions that could produce the symptoms he complained of. The most impressive finding so far was the washed-out appearance of the patient. He almost looked cadaverous, and most certainly suggested organic trouble of a serious nature.

It was suggested to the patient, in view of the fact that he could take and retain food without much difficulty, that he go to bed for at least two weeks with the idea of building him up to the ordeal of a complete gastro-intestinal analysis. This he at once accepted as plausible and, in fact, made very considerable improvement under nourishing diet and complete rest.

A stomach analysis was negative. Total acidity was 67 and free hydrochloric 50. Lactic acid was negative and the gastric flora was normal.

The report of the x-ray examination of the chest was that of an old healed tuberculosis.

The x-ray report of the gastro-intestinal tract is as follows: The esophagus is normal. The fundus of the stomach fills out normally. There is a large filling defect through the pars media at the anterior wall of the stomach. There appears to be plenty of gastric lumen, as this area can be seen only by manipulation in the erect position. In the prone position this large irregular filling defect is shown on the anteroposterior films as it was seen fluoroscopically. The semi-lateral film shows a fairly good gastric outline with only a small incisura in the greater curvature. The remainder of the stomach appears normal. The duodenal cap is very easily filled and is entirely normal as to size and shape. The remainder of the gastro-intestinal tract is normal.

As a large part of the gastric defect was due to spasticity, the patient was given atropine and re-examined. This revealed an absence of the original glaring defect, but a constant depression on the greater curvature. There was a spot of barium about the size of a dime, on the anterior wall, which did not change on manipulation.

The diagnosis was ulcer of the stomach, and, in view of the size of the ulcer, the history of the illness and the marked cachexia, it was safe to make a probable diagnosis of malignancy.

The illustrations portray the cardinal x-ray findings. Drawing number 1 shows the large defect before atropine was given; number 2, the defect in the greater curvature after atropine; and number 3, the constant spot of barium in the crater of the ulcer.

Fortunately, the patient was not a neurotic type. The diagnosis was gone into in considerable detail. In view of the fact that

he had never suffered any acute gastric distress, he could not fully appreciate my anxiety and also eagerness to have him undergo surgical intervention. He at last decided to go to one of the larger medical centers in the east for a check-up. From his doctor I received the following information:

Figure 1

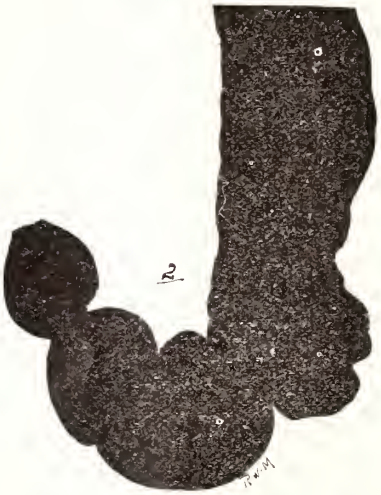

Figure 2

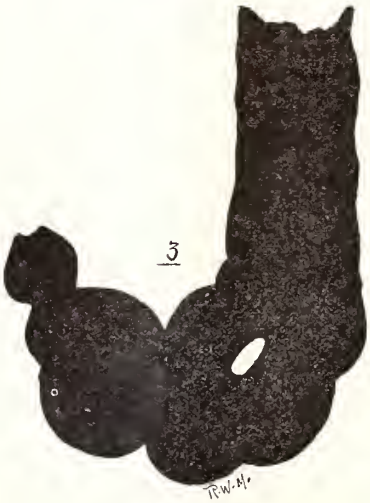

Figure 3

After a careful examination they diagnosed ulcer of the stomach with possible malignant change. At operation there was found on the anterior wall of the stomach, near the greater curvature, a tumor the size of a large plum. This was removed and followed by a typical Polya's operation. The liver, gallbladder and pancreas were all normal. The report from the pathologist is as follows:

Gross examination. The specimen consists of the pyloric portion of the stomach, measuring 9 cm. along the lesser curvature and 17 cm. along the greater curvature. There is a rather firm protuberance along the anterior wall of the greater curvature, beginning 8 cm. from the pylorus, measuring 4.5 cm. across the base and extending out for 2.5 cm. from the outer surface of the stomach. There are omental adhesions over a good portion of this mass and extending up over the anterior wall of the stomach to the lesser curvature. The mucosa is smooth and free from change except for a sharply punched-out opening which communicates with the hollowed-out interior of the mass described externally. This interior surface is ulcerated, rough and irregular, covered by fibrin. The wall is firm, pinkish-white in color, with numerous hemorrhagic areas.

Microscopic examination: Sections cut from the localized outpunching of the stomach wall show ulceration with entire loss of mucosa, the ulcer base being covered with fibrin, beneath which is granulation tissue mingled with tumor cells. Tumor cells comprise a mass making up almost the entire thickness of the wall, with infiltration and destruction of the mucosa, submucosa and muscularis. The cells are arranged closely together with a small amount of fine reticulum. They are of various sizes and shapes, mostly rounded or cuboidal form.

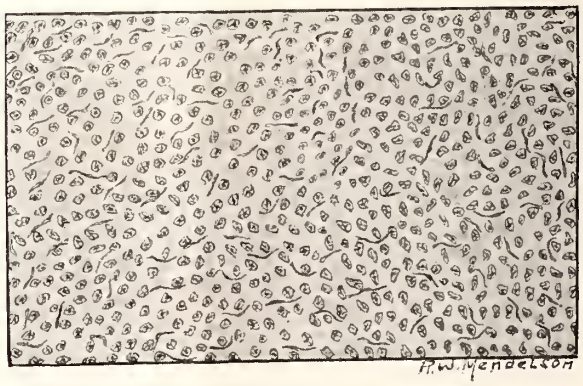
Figure 4

The nuclei are large, tend to hyperchromatism and are of loose reticulated structure. Mitotic figures are not seen. Many blood spaces are found filled with tumor cells.

Diagnosis: Mixed cell sarcoma of the stomach.

Condition of patient January 2, 1930: The patient is now back at work. His appetite is good, bowels normal. His weight is 116½ pounds and his hemoglobin 75 per cent. His gastric analysis shows a total acidity of 10 and no free HCl. This is as it should be considering the nature of the surgical procedure. There is no blood and no lactic acid present. He has suffered no "bilious attacks" since his operation. His medication is limited to hydrochloric acid after meals.

THE CAUTERIZATION OF ADHESIONS BY CLOSED PNEUMOLYSIS AFTER THE JACOBAEUS-UNVERRICHT METHOD

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and
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(Read before the Annual Meeting of the Medical and Surgical Association of the Southwest, held in El Paso, Texas, Nov. 6-8, 1930).

The end results in artificial pneumothorax are in direct proportion to the degree of collapse obtained. For years we attempted to close cavities in partially collapsed lungs by increasing the intrapleural pressure, in hope of stretching adhesions and thus obliterating the cavity. This seldom proved successful and many times proved disastrous by tearing adhesions, thus producing a natural pneumothorax and a resulting empyema.

For the purpose of argument, let us review a few facts relative to advanced tuberculosis. A number of years ago the United States Public Health Service made a survey of the tuberculosis situation in the Southwest. They found that 47 per cent of patients coming here died within six months of arrival. The statistics of one of the best institutions in the west shows that 80 per cent of their patients are dead within three years of discharge. The report of Harry Lee Barnes, of the Rhode Island State Sanatorium, shows that 85 per cent of cavity cases are dead within fifteen months of the time the cavity was diagnosed.

These figures are appalling, and no doubt exists in our minds that no small number of the 47 per cent dead in the Southwest six months after arrival, of the 80 per cent discharged sanatorium cases, and of the 85 per cent dead cavity cases of Barnes, could have been saved had proper advice and treatment been instituted before it became too late.

Two reasons for this situation stare us in the face: (1) Lack of early diagnosis; and (2) delay in instituting collapse therapy in cases of suitable type.

Early tuberculosis gets well in the majority of cases, and, if the patient is given the benefit of such diagnosis, he usually is not a candidate for collapse treatment. The average sanatorium head is today still keeping patients on bed rest in a vain endeavor to clear up advanced disease, when many such patients could be restored to a

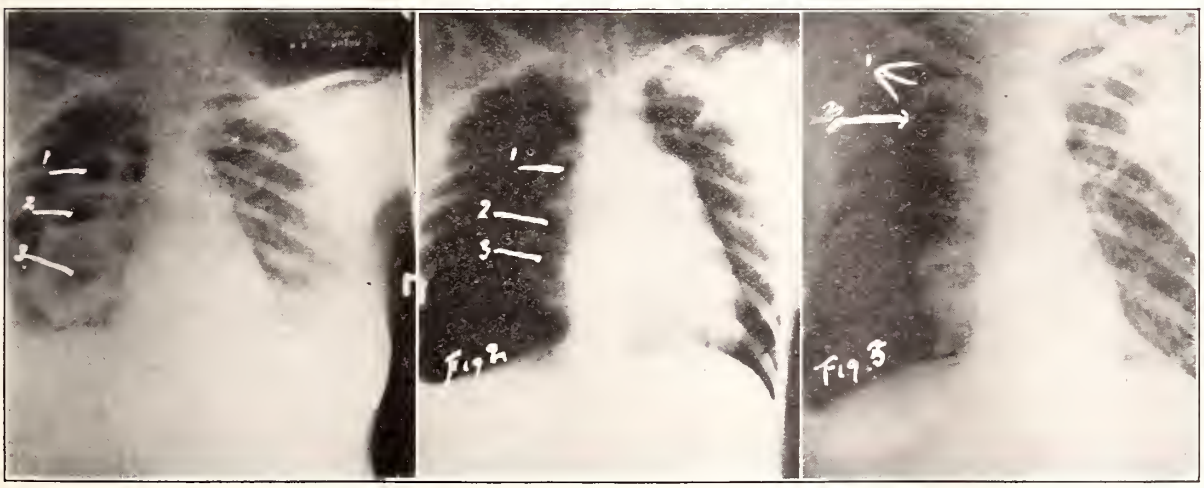

Fig. 1. Showing thick-walled cavities at 1-2-3. Multiple adhesions with one broad band. This is the patient in whom a shift of mediastinum occurred after burning broad band.

Fig. 2. Same as Fig. 1 with all adhesions burned. Walls too thick to get complete closure of cavities.

Fig. 3. Three adhesions at 1. Cavity 2.

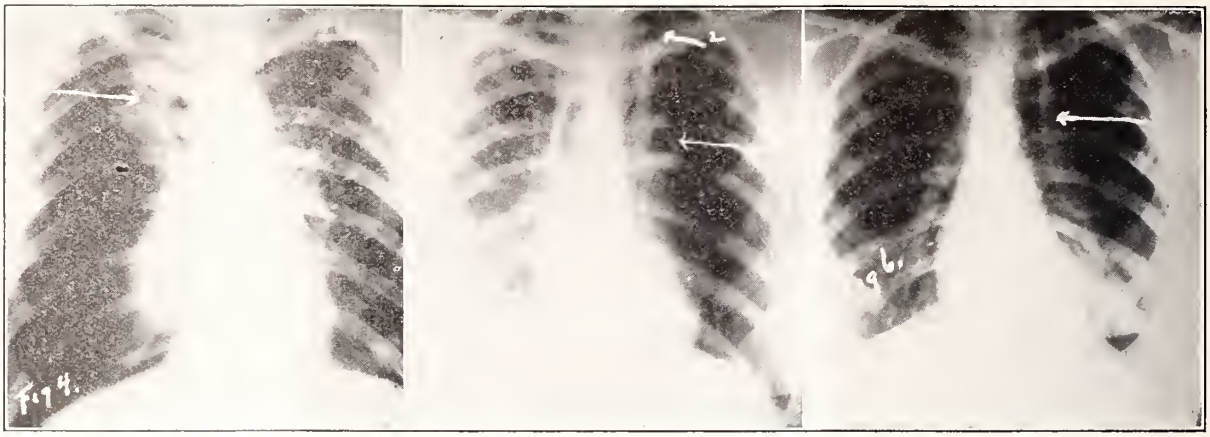

Fig. 4.—Cavity closed after three adhesions burned.

Fig. 5.—Adhesions at 2. Cavity 1.

Fig. 6. Same as Figure 5, cavity closed.

life of economic usefulness by the modern methods of so-called surgical compression.

In our original study of 700 cases of artificial pneumothorax, we found that 39 per cent showed a complete collapse, and 33 per cent partial collapse. In the complete collapse cases, 53 per cent are well and 24 per cent dead; in the partial collapse cases, 25 per cent are well and 44 per cent dead. It is very apparent that complete collapse is the sine qua non to success.

Until two years ago we made the best of a bad situation, but since that time we have been burning suitable adhesions after the Jacobaeus-Unverricht method of closed pneumolysis. This we feel to be a much saner and safer method than the open one.

Many operators still believe in carrying high pressures over long periods of time, expecting thereby to close cavities and effect a compression of the diseased area. This, as we have said, is dangerous and a waste of valuable time. After a pneumothorax has been carried on for a three-months period with only a partial collapse, x-rays should be taken and adhesions studied with the view of cauterization. Even when the x-ray leads one to believe that little can be done, exploring the pneumothorax cavity by the introduction of the thoracoscope often leads one to a very gratifying result. If watchful waiting is the keynote, adhesions will become organized, collateral circulation established, and failure will result.

Cauterization is indicated: (1) in all cases where, after three months' treatment, only a partial collapse is obtained; (2) in all cases requiring high positive pressures to maintain collapse, even when the collapse is complete; (3) in all cases where organized adhesions tend to contract and pull out the lung, thus obliterating the pleural space and making the continuation of the pneumothorax an improbability.

Cauterization is contra indicated: (1) when the contralateral lung is a poor risk, and the disease in that side is retrogressive; (2)

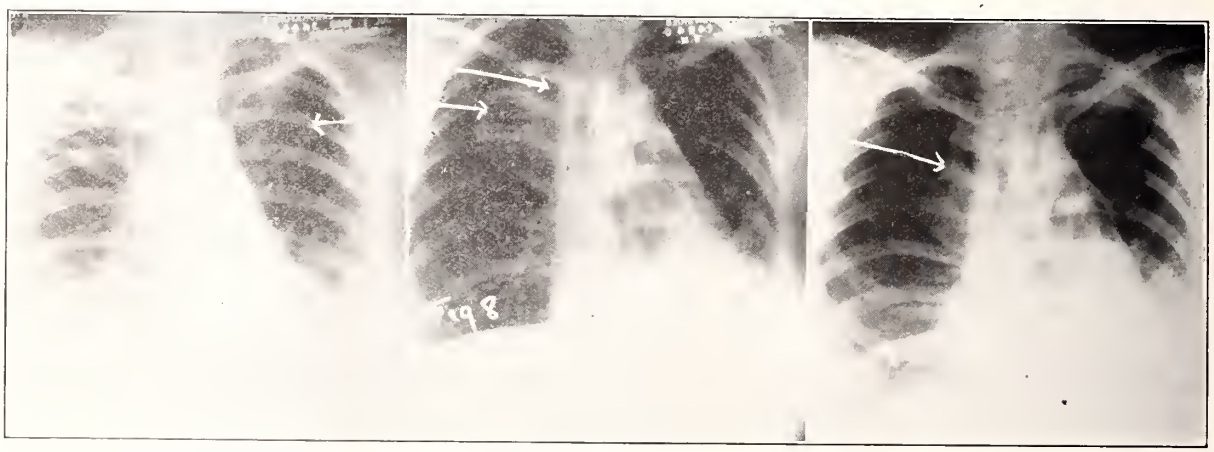

Fig. 7. Pneumothorax on left for two years. 1 is edge of re-expanding lung. Right cut large cavity following influenza. Pneumothorax instituted on right to close cavity at 2.
Fig. 8. Same as Figure 1 after pneumothorax. 1 adhesion; 2 cavity.
Fig. 9. Same as Figure 8 after cauterization.

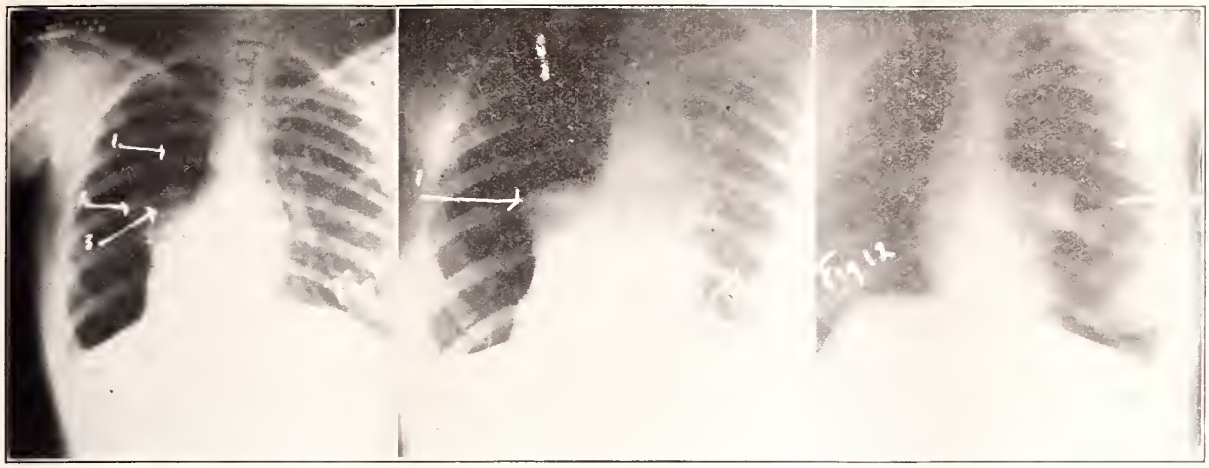

Fig. 10.—Adhesion 1. Edge of lung 2. Cavity 3.

Fig. 11.—Same as Figure 10, showing closure of cavity.

Fig. 12.—String adhesions 1. Band adhesion 2.

when there are other complications which in themselves may prove fatal.

The operation is a simple one and the patient usually experiences little discomfort. Sometimes it is necessary, where multiple adhesions exist, to do the burning in several stages. Postoperative treatment requires rest in bed for four to ten days, with sedatives to control cough. Pneumothorax refills can be resumed usually in forty-eight hours after the operation, with small amounts of air under low pressure.

The complications in our series have been insignificant. Bleeding was encountered in a few, but was so slight as to be easily controlled by the cautery.

Fluid developed in thirteen cases, or 36 per cent. This is handled as in the usual run of pneumothorax cases. One empyema developed, and this in the first patient on whom we operated. It was due to the fact that what we thought to be a band adhesion proved to be the floor of a cavity. The cauterization was interrupted when the mistake was noted, but in a week's time a tear occurred. The same patient is alive and well today after a thoracoplasty. A shift of the mediastinum occurred in one patient after burning adhesions that were under high tension. Dyspnea and cyanosis were marked for forty-eight hours, but the picture cleared with no untoward results.

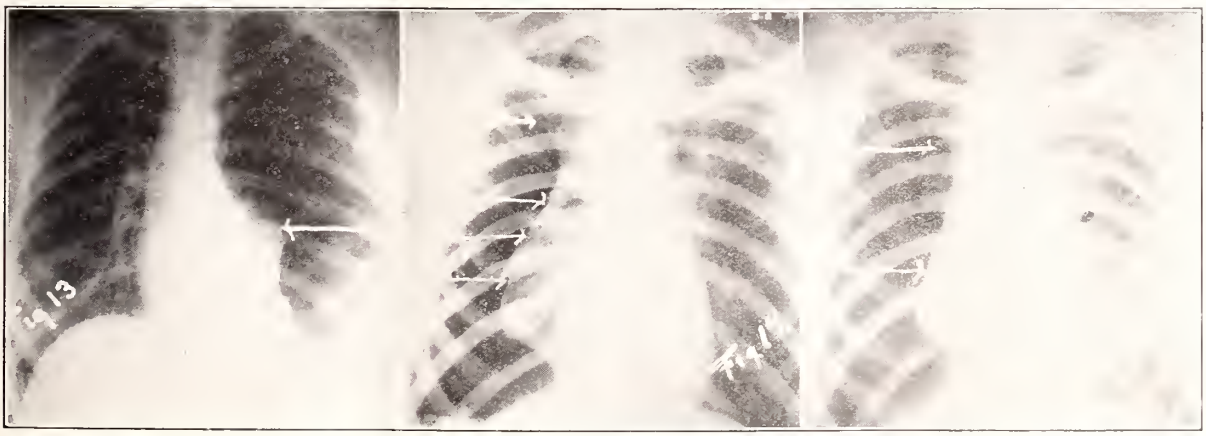

Fig. 13.—Same as Figure 12 showing closure of cavity.

Fig. 14.—Cavities at 1-2-3. String adhesion at 4.

Fig. 15.—Same as Figure 14 with all cavities closed 2 shows stump of adhesion.

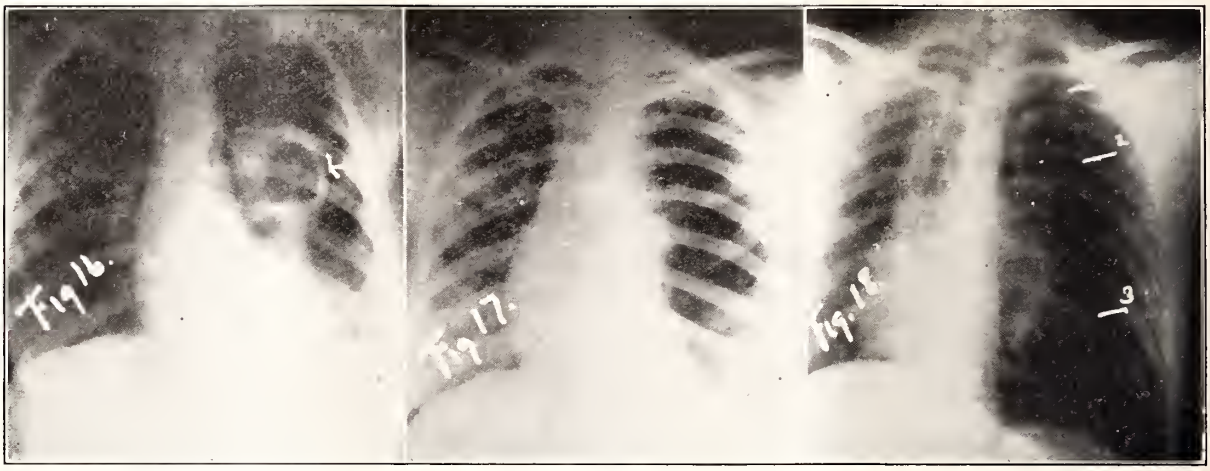

Fig. 16. Large cavity at 1.
Fig. 17. Same as Figure 16 with cavity closed. Note that edge of lung cannot be seen.
Fig. 18. Multiple adhesions at 1 and 3. Cavity 2. Mediastinal shift.

During the two years' time, we have attempted pneumothorax on 149 cases. In this number, sixty-six, or 44 per cent, gave a complete collapse; fifty-five, or 37 per cent, a partial collapse; and twenty-eight, or 19 per cent, showed no free space. Of the partial collapse cases, a cauterization was done on forty, or 72 per cent. Four could not be burned on exploration, leaving thirty-six to be studied. Of these, twenty-seven, or 75 per cent, were given a complete collapse. Six were benfited, but not all adhesions could be burned. Two received no benefit, and one, as stated, had a natural pneumothorax with empyema.

To have converted 75 per cent partial to complete collapse cases, seems to us to speak in no uncertain terms for a more general use of the method among pneumothorax workers.

A detailed discussion of the surgical technic can be read in an article we published in the Medical Journal and Record for September 17, 1930, reprints of which will be sent on request.

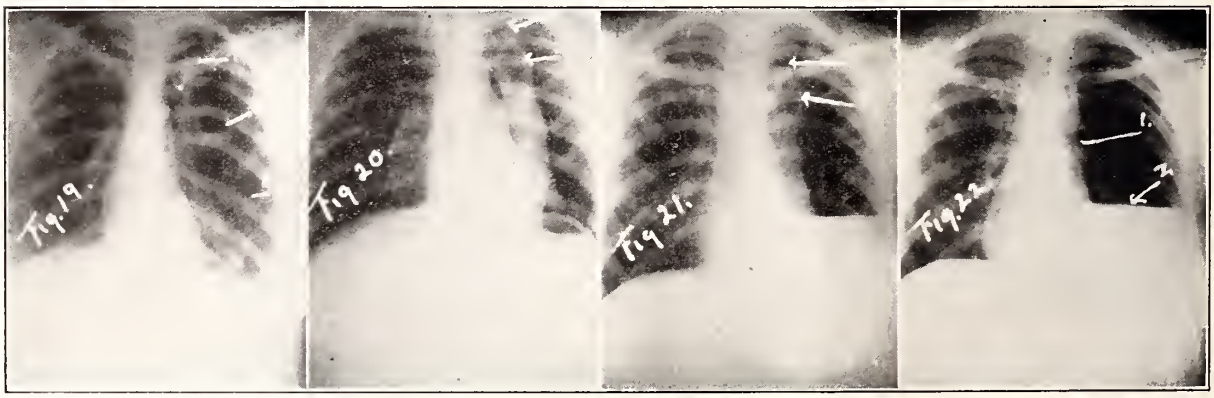

Fig. 19. After first cauterization. Still held at 1 and 3.
Fig. 20. After 2nd operation. Still holds at 2 and cavity showing at 1.
Fig. 21. After 3rd operation. Adhesions burned. Top of lung at 1. Cavity still shows at 2.
Fig. 22. Complete closure after pneumothorax refills. Note fluid formation in Figures 21 and 22.

THE CRITERIA WHICH DETERMINE A SURGEON'S TREATMENT OF THE TOXIC GOITER PATIENT

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(Read before the Fifteenth Annual Meeting of the Medical and Surgical Association of the Southwest, at El Paso, Texas, Nov. 6-8, 1930).

It is the recognition of contraindications, one after another, to operation upon highly toxic patients that has, little by little, decreased the surgical mortality to a figure that would be considered almost negligible in any field. What this means for us today was conveyed in a remark of C. H. Mayo, some years since, that his first series of thyroidectomies, where toxicity was high, done near the beginning of this century, entailed a mortality of 25 per cent; this from a highly gifted operator. Think what it must have been in other hands at that same time.

The subject of this paper suggested itself after we had recently made an analysis of our last 100 deaths in hospital from all causes. There were thirty-seven cases of thyrotoxicosis among them. Of these, fourteen, or 38 per cent, died before operation. This is a fairly good expression of the extreme gravity of the situation in which many of our cases find themselves. I wonder whether so even a ratio exists between non-operative and operative deaths in any other disease amenable to surgery. Certainly not in our experience. It is partly the expression of the notorious inability of the thyrotoxic patient to appreciate the fact of his sickness and partly due to the confirmed habit of the general practitioner of treating thyrotoxicosis indefinitely as though it were a medical disease. Of those patients dying before operation from whom a history could be obtained, there had been a recognized goiter for from eight to thirty years in 80 per cent. Definite symptoms of toxicity had been present for over one year in 65 per cent of this group. Of the patients dying following operation, death occurred in crisis, in afebrile circulatory failure and from complications, in about equal numbers. All of those dying in thyrotoxic crisis had been toxic for over ten months, with one exception, and were, with one exception, under fifty years of age. Those dying in afebrile circulatory failure were, with one exception, over fifty and had had their goiters for periods ranging from ten to twenty-six years; only one, however, had had toxic symptoms for more than six months. The circulatory systems of persons past middle life obviously stand the added imposition of thyrotoxicosis poorly.

Three classes, roughly speaking, may be said to suggest themselves for patients who come to a goiter clinic. (1) At one extreme are the ordinary surgical risks, in fair health as measured by every standard and ready for more or less immediate operation. (2) The intermediate group for whom the modern detailed scheme of preparation is proposed is large; they are the doubtful class, not surgical patients now, but having definite possibilities of surgical cure within a reasonable period. (3) At the other extreme is a group most members of which should be rejected, or accepted with every reservation and no prognosis or promise of any sort made; here we find congestive heart failure, serious parenchymatous changes, extreme emaciation, marked nervous and mental imbalance, and so forth. This worst type of toxic goiter patient should be admitted to the hospital with the full understanding that nothing radical can safely be attempted for several months, that is, probably not during the primary stay. Reparative processes are time-consuming; no thoughtful physician would recommend major surgery, unless of emergency nature—which thyroidectomy never is Hertzler)—until long after an attack of typhoid fever or pneumonia. Is it then, during the acute phase of this disease, which makes no less early serious inroads, logical or sensible to impose a dangerously heavy load until the maximum of recovery has been reached? An operation while a patient is too toxic is the more inexcusable, particularly in view of the experience that the disease is usually characterized by more or less complete remissions of some months, during which periods a thyroidectomy is relatively free from danger. It will be remembered in this connection that fifty patients were treated at Mt. Sinai, some years ago, by merely resting and feeding them, the results for the time being uniformly good; all of which has a quite obvious bearing upon the period indicated for radical operation.

There is no such thing as surgical treatment for the relief of a toxic patient on the down-grade. This dictum has long been generally accepted, as far as thyroidectomy is concerned, but I am sure that the various steps of the graded operation should be included as well. As a proof of this statement, I submit the current belief that ligation carries a much higher mortality than thyroidectomy, explained by its being done in the worst type of patient, that is, when nothing at all operative was justifed. To go further, I have seen death produced by a hot water injection. All of this in patients

who may reasonably expect a free interval, if only they wait long enough.

The medical adviser is prone to feel at times that the patient is at a standstill and to offer as an argument for operation the statement that "she will improve no further unless something is done." Such reasoning should, of course, carry no weight unless the patient be well within safe limits, though we have too often heard it used as an alibi following an operative tragedy. To make the matter worse, it must be admitted that no one knows when the toxic goiter patient may make an unexpected amount of spontaneous temporary improvement.

NEED OF ROUTINE CRITERIA

The mortality following thyroidectomy upon toxic patients is probably so great, if all operators are considered, as to warrant the contemplation and employment of some sort of routine memory check-chart of the sort proposed. The nearly 100 per cent results in the best-known goiter clinics seem to have been achieved by a proper choice of patients for operation. Surely they have not been a result of improvement in operative procedure alone; the principles that governed Kocher in his earliest days have not yet been discarded. It is difficult to discover from their writings just the process of elimination practiced by conspicuously successful goiter surgeons when dealing with types of patients unsuited to operation, hence, I have taken pains at this time to crystallize the clinical and, to a lesser extent, the laboratory data which seem to represent the minimum requirements to be met by any patient who is definitely safe as a risk for thyroidectomy.

The special criteria by which we judge a thyroidectomy to be safe for the individual toxic patient do not, probably, differ in any essential from those accepted by other surgeons of wide experience in this field; the order of their seeming importance will, I am sure, vary in the different clinics, according to the experience of each, which is as might be expected. Visits to the various clinics of note reveal the fact that widely separated sections of the United States present patients of diverse types and of quite different degrees of severity. It is better to have any graphic check that is followed systematically in every instance than to have none. In this way alone it is impossible to overlook one or more of the vital data, all of which must be satisfactory if a calamity is to be surely avoided. When working without some such routine plan, it is an easy matter to gain a sense of false security from a surprising improvement in pulse rate or general appearance when other vital data which would suggest further postponement of operation remain unnoticed and the unexpected happens.

No check form is needed for most pathological conditions since one generally accepted contraindication settles the matter of delay for maximum improvement. No well-informed surgeon chooses for radical operation the acutely jaundiced gallstone patient, the pyloric ulcer patient who has just experienced a profuse hemorrhage, or a sufferer from acute prostatic retention. Another picture is presented by toxic goiter; here any one of half a dozen different considerations may vitally affect the end result, hence, the value of a memory check.

Almost every one of our goiter tragedies in recent years (excepting, of course, an occasional operating-room accident or postoperative complication) seems easily explainable when scrutinized in detail according to the outline of our present indication chart. Practically every such patient was definitely substandard in one or more particulars which seemed inconsequential in view of satisfactory gain in certain directions. Hence the value of some memory check which leaves little chance of failure through an operator being misled by what may be termed "general impressions" of a patient. These criteria which we employ and suggest for the routine estimation of toxic goiter patients are: (1) heredity, (2) age, (3) duration, (4) circulation, (5) excretion, (6) nutrition, (7) self-control, (8) metabolism, (9) "breathing time."

HEREDITY. Our clinical and laboratory examinations by which we estimate a patient's condition, are manifold. They give us a certain picture of more or less damage to heart, kidneys or whatnot, as the case may be. We are too prone to have our attention fastened on inverted T waves or hyaline casts, forgetting that any two patients exhibiting such findings may have entirely different futures. Beyond all clinical data that can be assembled, lies that quality of "vitality" or "reserve" which is handed down from forebears who for generations have been long-lived or short-lived, as the case may be. Some breeds are "hard to kill" and live up to that reputation in withstanding illness or operation; others, apparently quite as sound so far as we can measure, show a disconcerting tendency to die young, as a matter of family tradition, once a severe strain of any sort is put upon them. Let us not narrow our vision of a patient to such an extent that these intangibles are excluded.

AGE. The very young (under 18) and the elderly (over 50) are regarded as relatively poor risks on the basis of age alone, but for different reasons; the young for fear of recurrence, and the elderly for fear of primary mortality. The situation of a child or an adolescent who is truly thyrotoxic is tragic in its implications. One does not like to take too much of the gland at operation because of the physiologic needs of the developing body and mind; one dares not leave much because of this same demand that will be made on the remnant by the metabolism, with risk of recurrence. The resistance to stress is less during the periods of change, particularly of growth, as truly in the human as in unicellular organisms. Bearing this in mind, one must supervise the minutiae of every-day life in these youngsters, following operation, until maturity is reached, if one have any hope of as satisfactory results as in adults, who are relatively in a "resting stage." Faced with a definite recurrence, it is imperative that reoperation be performed, since recovery otherwise is hopeless in the face of the physical and emotional readjustment to life that is the whole basis of adolescent physiology. The situation, we have said, is potentially tragic. It is not unlike that of the diabetic child.

We have spoken, elsewhere in this paper, of our experience on thyrotoxicosis in those past the prime. Even if the disease is of short duration, elderly people cannot be long confined to bed without serious impairment of vitality; they do not stand any operation as well as they would have twenty years previously. Consequently, we do as little at a time to them as is consistent with a reasonably speedy recovery.

DURATION. Long duration makes the vicious circle of thyrotoxicosis more difficult to break and it makes the breaking of it unquestionably more risky in that the degenerative processes of age, if the patient is elderly, underlie the damage of thyrotoxicosis. The onset of toxic symptoms in a goiter that has been present for many years, is characteristically insidious. We regard as typical the patient who first admits having been nervous for only a few months and later recalls dyspnea on mild exertion with transient palpitation for ten years. Even in the absence of decompensation, we get discouraging electrocardiograms from them and occasional patients of this group are apt to die with afebrile circulatory collapse if approached incautiously. In judging the status of middle-aged patients, we pay little attention to a history of only short duration of recognized thyroid enlargement. The finding of calcium deposits in goiters whose presence was known for only a few months, makes such histories of only academic interest. But if the history be carefully taken, duration of symptoms of toxicity is an important point as a guide to estimating what preparatory treatment is to be expected, what the operative risk is likely to be, and how long disability subsequent to operation will continue.

CIRCULATION. In considering the condition of the patient's heart and circulation in regard to choosing the time of operation, we must remember that every goiter patient with hyperthyroidism has an increased pulse rate and an overactive heart directly proportional to the degree of hyperthyroidsm. In the majority of instances, the heart itself is normal, and its overactivity represents the response of the normal heart to the stimulus of hyperthyroidism. Other factors being favorable, we need have no fear that the patient will die of heart failure. The operative deaths are most often due to acute thyrotoxicosis, and, because of the fact that in this state the patient's heart rate becomes extremely rapid, we must not allow ourselves to evade the responsibility of a thyrotoxic death by ascribing the death to heart failure.

There is one cardiac condition, however, which is an absolute contraindication to operation, namely, congestive heart failure. It is not unusual for a goiter patient to go along for years with a relatively mild and often unsuspected hyperthyroidism, and gradually to develop cardiac decompensation. At times the decompensation may come on abruptly, due either to a cycle of increased activity of the goiter or some unusual overactivity of the patient. At any rate, we find the patient with edema, which may be so extensive as to include effusions of fluid into the pleural and peritoneal spaces, enlargement of the liver and congestion of the lungs. Any degree of cardiac decompensation of this sort necessitates postponement of any operation until cardiac compensation has been restored by prolonged medical treatment.

Auricular fibrillation is so common among goiter patients that internists have come to suspect hyperthyroidism in every patient with either transient or continuous auricular fibrillation. The irregularity of the heart is not in itself a contraindication to operation. If there is no congestive heart failure, the irregularity per se may be disregarded. During the period of preoperative treatment, as the hyperthyroidism decreases the heart action often spontaneously becomes regular. It is often advantageous to

give these patients small doses of quindine, which is particularly effective, and is also apparently particularly harmless in goiter patients. It is important that unless there is definite cardiac decompensation, digitalis should not be used. Digatalis seems to do more harm than good, and we have long ago ceased using it as a routine preoperative treatment. In the cases with congestive heart failure, however, the exact opposite is true, and large doses of digitalis are extremely valuable.

The systolic blood pressure is, of course, usually elevated in hyperthyroidism, with a decreased diastolic pressure giving a wide pulse pressure. A useful point in evaluating the circulatory condition is the presence and degree of shading of the diastolic pressure. A large amount of shading is indicative of poor and unstable vascular tone, and is an unfavorable finding.

The pulse rate usually parallels the basal metabolism, and a constantly very rapid rate is, of course, unfavorable. At times we find that the sleeping or resting pulse is relatively slow, whereas the slight flurry of excitement caused by the physician's visit results in a marked increase of pulse rate. This is more indicative of emotional instability than of cardiac weakness, but is, nevertheless, an unfavorable point.

EXCRETION. The excretory systems are of importance to our estimation of the patient in two connections. (1) Renal damage of clinical significance is rare in thyrotoxicosis per se, except as a terminal event. The kidney function of elderly patients, particularly of those who have an associated hypertensive cardiovascular-renal syndrome, must be carefully determined by urinalysis, ability to concentrate, ability to excrete dye, such as phenolsulphonphthalein, and retention of nitrogen in the blood. Nitrogen retention of high degree is an absolute contraindication to operation; even mild retention should be demonstrated to be stable and not rising, by repeated examinations, before operation is considered. Persistent nitrogen retention, except that due to dehydration or cardiac decompensation that can be relieved, indicates a future so gloomy because of renal disease that thyroidectomy would not be likely to increase expectancy, and would, therefore, be unjustified. In the absence of nitrogen retention, inability to concentrate the urine higher than, say, 1012, makes us careful to throw as little operative burden as possible on the cardio-renal apparatus that goes with it; in such a case we tend to divide the operation into stages. It so happens that we are rarely faced with edema of "renal" origin. It constitutes, of course, a complete contraindication to surgery, not only until it disappears, but for a sufficient length of time thereafter so that satisfactory renal function can be reestablished and maintained. Active urinary tract infection must be brought under control to the extent that the patient is free of urinary symptoms before operation is contemplated. We routinely do P.S.P. determinations on patients past middle life, regarding a total dye excretion of about 70 per cent in two hours after intramuscular injection as satisfactory. Further investigations are made as routine urinalysis or symptoms warrant. (2) Generalized glandular overactivity is, of course, characteristic of acute thyrotoxicosis. We do not regard the patient who is sweating profusely or is having diarrhea as ready for even the shortest operative procedure. The onset of bronchorrhea is a sign of impending dissolution. Patients dying in acute thyroid crisis seem almost to drown in their own bronchial secretions. We rarely have occasion to investigate liver function in determining operative risk in goiter. Damage to all parenchymatous organs is described as occurring in crisis. Except in connection with coexisting biliary or hepatic disease, the estimation of the function of the liver, whose reserve is second only, perhaps, to that of the myocardium, concerns us little.

NUTRITION. The nutritional state on entrance affords us a means of estimating roughly how extensive an operation the patient will be able to stand. The emaciated, severely depleted subject can rarely be put in shape for more than ligations; the patient who has lost, say, not over 10 per cent of his body weight can usually be prepared for subtotal thyroidectomy. In the intermediate group, it is important to know whether the patient is regaining lost weight or is still losing at the time of entrance to the hospital. This indicates whether or not the patient is going toward or away from a natural remission. Changes in weight on bed-rest and treatment are not so important. In our experience almost all goiter patients lose weight during their hospital stay, for preparatory treatment does not induce complete, but only partial, remission. Though we have not investigated the point particularly, it seems likely that only patients who are gaining weight previous to entrance will continue to do so in the hospital. The rate of loss, however, must decrease on treatment, for continuing rapid loss of weight is an absolute contraindication to surgery.

SELF-CONTROL. This is a factor which defies definition; our evaluation of it is,

therefore, vague. The stimulation of marked thyrotoxicosis is unmistabable. When put to bed, patients cannot at first relax. The earliest sign of benefit from preoperative treatment is the disappearance of restlessness, constant change of position, unpremeditated motions of the hands and feet. The speech of such patients begins to slow down. Their thoughts, apparently, become more reasonable and they show a disposition to recognize the situation and cooperate in getting themselves ready for operation. We distrust as an operative risk the patient who cannot relax, who continues to talk about the necessity for hurrying the day of operation, who talks from day to day of getting up and going home. We rarely have to worry about the patient who will let us do the worrying. Finally, the patient who, after the usual preoperative sedatives, comes to the operative table in an unmanageable condition, is promptly sent back to bed. It was long ago learned that this patient cannot be properly anesthetized and that to proceed with operation at that time invites almost certain disaster. Such a patient should be ligated eventually and sent home for a few months.

METABOLISM. The metabolic rate, as a guide to how much operating may be done at once, is, we often think, really the least useful of the criteria by which we judge the risk. We find ourselves doing subtotal thyroidectomy on a patient whose B.M.R. was plus 55 on the preceding day, with little subsequent reaction, then doing ligations on another patient whose rate is even lower. A series of metabolism determinations throws light on the course of the toxicity, but adds to the patient's expense. Our routine is to do the determination only at entrance as part of our estimation of the patient's original status toward which we can expect a reversion immediately following operation. The metabolic rate is distinctly useful to us, of course, in differentiation of cases of anxiety states and mild hyperthyroidism and in the treatment of hypothyroidism.

"BREATHING TIME." The final criterion for operability to which we turn, is the ability of the patient to hold his breath. The duration of voluntary apnea after both deep inspiration and deep expiration and the ratio between them, determines what we refer to as the "breathing time;" this is expressed as a fraction in which the numerator represents the duration in seconds of voluntary apnea after deep inspiration, the denominator giving the corresponding value after deep expiration. The normal ratio between the two figures is approximately two to one, the duration in seconds varying normally with age, sex, and athletic training especially. This observation was made at five intervals during the preoperative care of a series of cases and a correlation found to exist between the "breathing time" and the other phenomena whereby we estimate the progress in thyrotoxicosis. A preliminary report of the findings was made by the junior author before the American Association for the Study of Goiter at this year's meeting. Briefly, our study to date indicates that the breathing time, expressed, as stated, in the form of a fraction, varies characteristically with the progress of the disease; its two factors show a differential response to particular phases in the patient's disease. Changes in the numerator closely parallel changes in pulse rate and blood pressure and the numerator, therefore, seems to be an expression primarily of the condition of the cardio-vascular system, including, probably, the alkali reserve; the denominator, on the contrary, varies directly with the general level of metabolism. One must bear this differential response of the factors in mind in interpreting one's findings, also the fact that as improvement occurs the ratio approaches the normal, 2:1, whether the first ratio determined be 1:1 or 4:1. The characteristic ratio is 1:1 in acute, untreated hyperthyroidism in persons other than trained athletes or those doing much manual labor. We know so little yet of the exact physiological explanation of these observations that we offer our present working rules in interpreting them as only tentative. Moreover, one must be able to estimate roughly what the duration of voluntary apnea in health for the individual patient must have been; this comes only after experience with the test on many toxic and non-toxic patients. When the anticipated limit of improvement on preparatory treatment has been reached, it is our tendency to work cautiously, that is, to do ligations or lobectomy, if the ratio be not yet nearly 2:1, but if it is approximately 2:1, we are more apt to do subtotal operation. On the consideration of concrete cases we can be much more definite than this, but it is equally impossible to generalize on the application of any other clinical test.

Since the "breathing time" gives us the information combined in pulse rate, blood pressure, and metabolic rate, we find it invaluable and place more reliance on it, certainly, than on any one of them.

Before passing on from a consideration of these nine criteria, we must urge that it seems to us wholly logical to establish surgical indications when the patient is first seen if all operative risk is to be avoided;

especially is this true of an elderly individual and of one who has been long sick. A rapid apparent improvement during artificial existence in hospital, may deceive one as to real conditions, hence it should not be the only criterion. Here is an example. Miss F., 53 years old, died July 13, 1930, some fifteen hours after operation, of acute heart exhaustion, having apparently borne thyroidectomy perfectly after satisfactory preparation of three weeks; she had seemed a complete wreck when she entered the hospital with a history of twenty-five years of semi-invalidism.

TECHNICAL CONSIDERATIONS

It should always be borne in mind in every type of thyroid operation, that practically no dependence is to be placed on the positive appearance of good condition on the operative table. The surgeon who considers this one of his reliable criteria and aims to go as far as the doubtful patient's condition permits, is sure to lose some patients within twenty-four hours, from circulatory failure, thyrotoxicosis, or respiratory failure. The explanation is that the resulting breakdown first comes entirely without warning several hours after too much operating on a patient whose maximum limit of toleration should have been established preoperatively. On the other hand, there is great value of a negative sort to the warning that a patient is failing on the table. When this appears, pack gauze about clamps and cease at any stage.

The graded operation is much more common in our own experience than one would expect it to be after learning from Pemberton that it is most unusual at the Mayo Clinic. The contrast is more apparent than real, explained, I think, by the fact that we work in a large city while much of their work comes from very distant localities. Consider that the neglected patient, if any, requires the graded operation, that he is not likely to be well informed on distant clinics, that he may not be well enough to endure a long journey, and that he is likely to remain at home for lack of funds; then one may have a partial explanation, at least, of this problem.

We have published elsewhere (monograph), in considerable detail and with numerous illustrations, the technic of various thyroid operations as employed in our service. No more than passing reference will be made to the matter here, though it must come to mind in this connection, because some of the patients who urgently need surgery are wholly unsuited to the demands made by the complete bilateral resection (the ideal operation). In all instances the type of operation must be chosen to meet individual requirements.

The surgeon's aim and endeavor will be, of course, the bilateral subtotal resection of the gland; in other words, one operation, one hospital stay—a procedure which is compatible with safety in most instances. There are, however, a number of patients who require an unreasonably long period of preparation before the ideal operation can safely be carried out; just here the multiple-stage procedure is used in our clinic. We do more, perhaps, than economize time in some instances. We may thus broaden the field of surgery by finally getting out all desired thyroid tissue on the patient who could never have borne the ideal operation at one stage.

We find three graded procedures most useful: (1) ligation, (2) preliminary flap-cutting, (3) lobectomy through a lateral incision. (1) Ligation of the upper pole, including vessels, lymphatics and secretory nerves, is a standardized procedure which requires no discussion here. We reserve it for the patient who is improving so slowly that no radical surgery is in sight during a hospital stay of reasonable length. (2) We do "preliminary flap-cutting" one week before bilateral resection on the patient whose improvement rate indicates that removal of the whole gland will be barely possible provided there be no mishap at operation or afterward; on such a patient we can do almost half the work in advance by exposing the gland, doing all the superficial ligating, then tightly closing the wound. A week later the gland can be exposed without applying a clamp, resected, and the partial closure of dry flaps made with a far slighter drain on the patient's slender reserve than would otherwise have been the case. (3) We remove one lobe only from the individual who seems too good for ligation but who definitely does not measure up to the minimum standard we have set for bilateral resection. Approach to the single lobe is made through an oblique lateral incision which splits the sterno-mastoid longitudinally. The lobectomy is simplified and time saved on a man whose collar will cover the scar, also on a woman whose age or degree of disability renders a visible scar comparatively unimportant, in her own eyes at least.

One might expect the mortality following the removal of a second thyroid lobe during one hospital stay to be practically nil, on the theory that we prove the patient's resistance by the first successful attempt. However, we greatly deplete the patient at the first sitting, hence must be very certain

that sufficient strength has been restored before the second lobectomy, else the mortality attending the second stage may be greater than that incident to the first, illogical as they may seem on first thought. We therefore send her home for several weeks' recovery before invading the opposite side, if this be at all feasible. No time interval can be suggested to fit all cases; it must be a matter of condition with each individual and should be measured by the ability to be up while weight, strength, appetite, pulse and self-control are improving.

There are, in addition, toxic thyroid patients in whom special invalidism indications present themselves. It is, I suppose, fairly well known that a clinical diagnosis of thyroid malignancy absolutely precludes surgical treatment; not only is an operating room tragedy well within the possibilities, but it should be fully understood, in addition, that the patient thus affected has been benefited for a considerable period only after the accidental finding of a malignant area in the thyroid specimen that has been removed.

As an example of the occasional special technical considerations which arise now and then, we are insisting that a thyroidectomy for recurrence should be done in two steps. These patients are older and present greater risks than at time of original operation. Adhesions increase the risk of accidental injury to trachea, great veins, parathyroids and particularly to motor nerve supply of larynx. Unilateral abducens palsy is ordinarly well borne, but a double lesion is often fatal. If second lobectomy causes it after palsy has subsided on the first side, no great harm is done.

Our criteria of operability multiply when we are frequently faced with two or more surgical lesions of which one is goiter. In what order shall they be dealt with? Thyroidectomy should be done first (a) if the patient is highly thyrotoxic, (b) if inhalation anesthesia will be required for the other operation, (c) if the goiter is the lesion that seems overwhelmingly the more important to the patient. One should not risk the stress of an abdominal hysterectomy for relatively asymptomatic fibroids in a thyrotoxic patient who has lost a third of her body weight, until after thyroidectomy has been done and the patient has had a year to regain her weight, strength, and cardiotially substernal goiter, in which unsightlivascular stability. In the case of large parness or pressure symptoms greatly annoy the patient, thyroidectomy should precede, say, hemorrhoidectomy or perineorrhaphy.

The operation other than thyroidectomy should be done first (a) if for a malignant lesion, (b) to eradicate a source of infection (other than in the tonsils), (c) if it entails the longer hospital stay. But treatment and rest sufficient to bring the thyrotoxicosis within control must be instituted before any operation is done. Thus, at the time of writing, we have a 62-year-old woman in the hospital who entered with a carcinoma of the breast, a toxic goiter of which she was unaware, (B.M.R. puls 41), and chronic nephritis of moderate degree. She was put on preparatory treatment for a week, then simple amputation of the breast was done, since x-ray of the chest disclosed pleural exudate, presumably from metastasis. Her expectancy is so short that her thyrotoxicosis can be fairly well controlled by partial limitation of activity with occasional complete bed rest, x-ray and iodine. Had she not had evidence of metastasis, we should have done radical amputation and thyroidectomy later. If a patient has a non-toxic of mildly toxic goiter, he will be confined to bed only a few days after thyroidectomy. If, in addition, he needs cholecystectomy, which will keep him in bed for ten days to two weeks, we do cholecystectomy first and do the thyroidectomy eight or nine days later, so that the total disability is still only two weeks, whereas it would be nearer three weeks if thyroidectomy were done first. We sentence the patient to bed on two counts, so to speak, but make the sentences run concurrently.

SUMMARY

The charm which uncertainty holds for the born gambler can well be understood by the surgeon who at times finds it difficult but alluring to determine the weight of evidence for or against operation on a patient who has been extremely toxic. Success or failure in this field is largely a matter of contraindications and utterly impossible unless they be recognized. There are, of course, other important phases of this work: the diagnosis, but it is not difficult in the severe case; the preparation, which has been greatly facilitated by Plummer's advocacy of Lugol's solution; the operation, a mere matter of technical ability, organization and experience; the aftercare, which dwindles in importance provided the patient has been correctly chosen and the operation well conducted. But the keystone of this arch is the "contraindications." They are established by deductive reasoning of the highest type and it is hoped that a study of all patients according to the routine we are proposing may go far toward taking the element of uncertainty out of our results.

We may well add, in closing, that the mor-

tality during a period of financial stringency (1930) is sure to be higher than in normal business years. Not only does the pinch of poverty added to the other stresses of the disease render the toxic patient a poorer risk, but the moderately sick indicidual who can for a time postpone surgical treatment, does so to the point of complete incapacity; as a result we now see relatively few of the patients who usually enable us to keep down the low mortality possible in this sort of surgery.

CESARIAN SECTION IN THE GOOD SAMARITAN HOSPITAL DURING 1930

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(Analytical report made by Obstetrical Committee, at Staff Meeting of Good Samaritan Hospital, Phoenix, Ariz., for December, 1930).

ABSTRACT OF CASES

Case 1. (9579) Age 29, para II: first labor at age of 20; hard labor but normal delivery. Physical findings normal, blood pressure 124/90, entered hospital for cesarian section. Past term, membranes not ruptured. Kept in hospital one day for observation. Cesarian section performed. Mother and babe both in good condition. Indications on the chart were flat pelvis and malpresentation. Position of baby was not given, neither were there any x-ray or pelvic measurements charted. Baby weighed 8 lbs.

Case 2 (8722) Age 20, primipara; labor began 2:30 a. m. at 15-20 minute intervals. Entered the hospital at 7:40 a. m. Vaginal examination made at 8:15 a. m. No dilatation. One oz. magnesium sulphate given. Pains increased to 4-5 minutes intervals and lasted 40 seconds. 1:30 p. m., rectal examination showed head low, little if any dilatation. Patient now complained of a severe and almost continuous pain in right side. Blood pressure 130/80, white count 19,100. 5:30 p. m. rectal examination, no dilatation. Prepared for surgery. Cesarian section. Appendix also removed. Pathologist reported appendix lumen distended, mucosa atrophied, chronic appendicitis. Mother and babe left the hospital in 11 days in good condition. Indications were dystochia. No pelvic measurements or x-ray pictures of pelvis.

Case 3 (9714). Age 24, primapara, admitted 10 p. m. for cesarian section. No pains, no discharge. B. P. 110/70. 11 p. m. 2 oz. castor oil given. 2:25 a. m. patient states membranes ruptured. Pains every 4 minutes, sharp but of short duration. Bloody discharge. Rectal examination at 4 a. m., one finger dilatation, head low, pains at 6 minute intervals. 7 a. m. to surgery for cesarian section. Baby had a large meningocele at base of skull size of an egg. Both mother and babe left the hospital on the second day, apparently in good condition. Indications were flat pelvis, overdue, malpresentation. No pelvic measurements or x-ray pictures.

Case 4 (9131). Age 29, para II, first child 11 years old; a difficult prolonged labor; instrumental delivery; birth weight not given. Jan. 23d an irregular firm mass extending two inches above umbilicus, cervix high in vagina; mass did not fluctuate but was quite tender. March 22d, tumor seemed much softer and larger. Patient was pregnant, had felt motion since March 5th. June 2d, cervix small, about level of upper border of pubis. General impression of a tumor mass in left pelvic region. X-ray report, fetus in upper abdomen, head under costal arch, breech down. The fetus is abnormally high in abdomen, and lateral view which shows the contour of the fetus confirms the diagnosis of some tumor mass in the pelvis. Physicians agreed to a possible tumor and cesarian section was advised. She went into labor July 21st. Under ethylene anesthesia, the abdomen was opened, a large thin walled ovarian cyst was delivered. It ruptured and contained a thin limpid straw-colored fluid. This was clamped off and the uterus opened. A 6½ lb. female child was delivered.. Lower in the pelvis there was a large thin wall cyst which also ruptured, showing the typical contents of a dermoid. A cigarette drain was inserted to the bottom of the pelvis, and abdomen closed in the usual manner. She returned to bed in fair condition. She had a continued fever following the operation. The urine became scant. Uremia developed. She died on the 7th postoperative day. Baby was in good condition. Indications, pelvic tumor, previous difficult labor.

Case 5 (8731) Para III, age 43; first two labors normal. Entered hospital 7:50 a. m. Had a convulsion previous to admittance. B. P. 180/100. Given 2 ampules mag. sulph. 50 per cent. Intravenous normal saline 100 cc. Mag. sulphate 4 cc. 50 per cent solution. 100 cc. of 50 per cent glucose. 8:50 blood pressure 170/95, pulse 80 to 86. To surgery at 10:30 a. m. for cesarian. Left hospital on 9th day. Both mother and babe in good condition. Indications; eclampsia.

Case 6 (9191). Age 24; primapara; had recently been in sanitarium in California with following report: Physical findings on admission, fine moist rales in both apices. There was no moisture heard at time of discharge. Sputum consistently negative. Temperautre range for month previous to discharge 98.2 to 99. X-ray interpretation; increased prominence of both hili. Shadows with dense opacities. There is an infiltration in upper left as low as 2d rib somewhat mature, but activity cannot be excluded from film. There is more diffuse infiltration in right upper as low as 3d rib also mature.

Cesarian section was done. Mother developed marked mental symptoms which persisted while she was in the hospital. Baby did well. Indications tuberculosis, contracted pelvis. No pelvic measurements or x-ray pictures of pelvis.

Case 7 (9723). Age 24, para II; first baby age 4, weight 9½ lbs., hard labor, low forceps. She was in labor 53 hours—head still high, cervix thick. Consultant advised cesarian. Mother and child left hospital on 10th day in good condition. Indications; hard labor for many hours; head high, thick cervix.

Case 8 (9273). Age 24, primapara. Entered hospital Aug. 18. left next day. Pains ineffectual. Re-entered Aug. 21, 3:00 a. m.. pains every 6 minutes lasting 60 seconds. Vaginal examination at 8 a. m., no report recorded. Severe pains every 2-3 minutes. Cesarian section at 1:15 p. m. Consultation agreed to cesarian section. No pelvic measurements nor x-ray. Indications given as dystocia. contracted pelvis.

Case 9 (9870) Age 18, primipara. Hyperemesis gravidarum. First admission treated for hyperemesis and hypertension. Second admission treated with glucose intravenously without decrease in vomiting. X-ray of pelvis, moderate justo-minor pelvis. Head partly rotated and flexed in O. D. P. Anterior posterior measurements between sacrum and symphysis shown in lateral view, seems to be rather short for the size of head. Cesarian section. Mother and babe did nicely. Indications fulminating toxemia of hepatic type.

Case 10 (9848) Age 24, primipara. Entered the hospital for cesarian section. Blood was typed and urine examinations made. Blood pressure and urine were normal. No x-ray or pelvic measurements given. Indications, small pelvis and fibroid of the uterus. Both mother and babe in good condition.

Case 11 (9819) Age 34, para 7. Admitted in wheel chair complaining of excruciating pain in abdomen. Uterus firmly contracted. No fetal heart tones heard altho they were strong the day before. The patient soon was in shock, pulseless, considerable hemorrhage from the vagina. Cesarian section was immediately done. Transfusion done in operating room. Patient still in hospital. Baby did not breathe, heart tones absent, about 3 oz. of bloody fluid escaped nose and mouth of infant. Indications, abruptio placenta.

Case 12 (9840). Tiny female about 4 ft. 8 in. high, age 24, para II. Previous cesarian section. Pelvis extremely narrow and contracted. Baby weight 5 lb. 9 oz. Indications, contracted pelvis and chronic spondylitis. No x-ray or pelvic measurements given.

Case 13 (9001). Very tiny female, age 17, primipara. Entered hospital 1:45 a. m. Pains 1½-3 minutes. Vaginal examination at 3 a. m. 2 finger dilatation. 4 a. m. cesarian. Baby weighed 7 lb. 8 oz. Mother and babe in good condition. No x-ray or pelvic measurements. Indications, contracted pelvis.

Case 14 (8565). Age 40, primipara. Cesarian section, term pregnancy. Baby weighed 7 lb. 11 oz. Indications, arrested tuberculosis and contracted pelvis. No pelvic measurements or x-ray pictures of pelvis. Mother and babe in good condition.

Case 15 (8733) Age 23, para II, first child difficult labor with dead child. Cesarian section; babe weighed 8 lb. 15½ oz. There were no pelvic measurements or x-ray reports. Indications, flat pelvis and deformed anterior placed coccyx. Previous difficult labor with dead child.

Case 16 (8185) Age 43, para II; previous cesarian for eclampsia. Cesarian section, mother and child in good condition. Indications, previous cesarian, contracted pelvis. Pelvic measurements were recorded. Baby weighed 7 lb. 3¾ oz.

Case 17 (9089). Age 32, para V, children ages 14, 13, 12, 5. All previous pregnancies normal. Average birth weight about 9 lb. This patient was about 7 months pregnant. Blood pressure and urine normal. Baby weighed 2 lb. 15 oz. Lived two days. Indications; fractured pelvis. There was no history of when the pelvis was fractured and no x-ray pictures of the pelvis showing any deformity or callus formation, which might have caused a difficult labor.

Case 18 (7966). Age 29, primipara. In labor 24 hours, no progress. Rectal and vaginal examinations report head high. Cesarian section was done. Mother and babe in good conditioon. Baby weighed 7 lb. 7 oz. No pelvic measurements or x-ray pictures of pelvis. Indications, pelvic outlet too small for delivery of child's head. No progress in 24 hours labor.

Indications for Cesarian section:

Contracted pelvis	4
Flat pelvis	3
Dystocia	3
Appendicitis, dystocia	1
Eclampsia	1
Fractured pelvis	1
Abruptia placenta	1
Small pelvis, fibroids	1
Deformed and contracted pelvis	1

COMMENT

One physician had eight cases, one had five cases, five had one case each. One mother died of uremia. Two babies died, one of prematurely and one following abruptio placenta. Pelvic measurements are recorded in two cases only; x-ray examinations are recorded in four cases. Twelve cases had neither pelvic measurements nor x-ray examinations of the pelvis. Two mothers had had previous cesarian sections. There were five low sections and thirteen classical operations. There were nine multiparas and nine primiparas. Four miltiparas had had previous normal deliveries. Three multiparas had had previous instrumental deliveries. One had had a difficult labor with dead baby.

RECOMMENDATIONS

Every pregnant woman entering this hospital must have her blood pressure taken immediately. This is necessary, because not a few pregnant women with supposedly good prenatal care have never had blood pressures taken. I think this hospital should require external pelvic measurements to be made on all obstetrical patients, preferably by the house physician.

Last year, the examiner for the American College of Surgeons complimented the hospital very highly on the lack of cesarian sections. Perhaps they will examine our charts more carefully this year when they see the large increase in cesarians. From the facts recorded in these eighteen charts, it would appear that section was not clearly indicated in all the cases. Let us make our records so complete and accurate that we will not be criticized for cesarian sections in patients who could probably have been safely delivered from below.

DISCUSSION

DR. DUDLEY FOURNIER:—Cesarian section is the generalissimo of surgery and rightly so, for upon it depend two lives and it, therefore, should have very definite indications. Abdominal section is the quickest method of effecting delivery and one that entails least risk of sacrificing the child. When compared with the process of dilatation and expulsion, section promises delivery which may be said to be immediate. Because section puts an end to pregnancy and terminates labor at the same time, it has a definite place in the management of those cases which demand a quick emptying of the uterus, and also in those in which delivery cannot be effected from below, because of the probable loss of the mother or child or both.

The indications for cesarean section are more or less standardized and the actual necessity for section does not occur very often; when the obstetrician has recourse to it he acknowledges that the measures he usually employs are inadequate and he turns to this surgical procedure no oftener than the interests of his patient demand. Cesarean section offers such easy solution to grave obstetrical problems that its appeal is often difficult to resist.

The first indication for cesarean section is absolute pelvic contraction. The contraction is absolute where disproportion is so marked that delivery of a living child by the vaginal route is improbable. The contraction may be relative or actual. It is relative when the presenting part is overlarge for the pelvis through which it must pass, and it should be borne in mind that contraction may be absolute even though the pelvic measurements are normal.

This variety of contraction is of far greater clinical importance than the actual. One more often meets an overlarge unengaged head than a markedly undersized pelvis. Cephalmetry and particularly radiography are the aids to be made use of in diagnosis. Pelvimetry in these cases offers nothing. Actual contraction exists where the internal conjugate is shortened to 7 cm. in simple flat pelvis and to 7½ cm. in justo minor flat and where the bisischial diameter is no longer than 5.5 cm. In these cases where the patient is at term, delivery by other than abdominal section is not to be considered.

Second indication: pelvic tumors obstructing advance of the fetus. Under these conditions section alone assures birth of a living child. Uterine fibroids are not uncommon; they grow rapidly during pregnancy; ovarian cysts are rarely obstructive.

Another indication, on the part of the child, is prolapse of the cord. Nowadays there is so much importance attached to the life of the child that delivery by section should be considered if the cervix is not easily dilatable. Habitual death of the fetus in or just before labor is another indicator.

Antepartum eclampsia section is an emergency measure and should only be considered when conservative methods of treatment have failed, as the mortality rate of section in these cases is notoriously high.

Accidental hemorrhage; prompt section may offer the only chance for the mother's life in grave accidental hemorrhage with an undilated or undilatable cervix. A uterus rapidly increasing in size, markedly tense and tender and the general signs of internal hemorrhage with the disappearance of fetal heart sounds is all the evidence one needs for section. With hemorrhage concealed the demand for rapid delivery is urgent. Minutes count in cases of this kind and one must hurry in the preparation of the case.

In placenta previa, I believe section is indicated to obviate the probable loss of the child and in central placenta previa it is absolutely indicated. The operation should be elective and should be done before the placenta can be palpated through the dilatory cervix.

Grave uterine dystocia; this condition obtains where a contraction ring has been found impassable and where the uterus is tonic. Section in these cases affords the only assurance of obtaining a living child and removes the menace of uterine rupture. Early stillbirth due to accidents at delivery, that is, the so-called border line cases of pelvic contraction.

Lastly, previous delivery by section: The benefits accruing from repeated section are, the certainty that a living child will be born alive, and that assurance that the mother's life will not be lost in labor through rupture of the uterus at the site of an early incision. Previous cesarean section is not of itself an indication for abdominal delivery but it is the presence of a specific indication that calls for the repetition of section in a subsequent pregnancy.

Good Samaritan Hospital (Phoenix)

(Report of Records Committee on deaths during October, 1930, with comments by Dr. W. Warner Watkins, Chairman.)

Very briefly we will list the fourteen deaths occurring during October, and from these select three for comment:

9571:- Male, age 70; entered Oct. 5, died Oct. 7. Hopeless fracture of the skull from auto accident.

9565:- Female, married, age 42; entered Oct. 5, died Oct. 7; extensive burns.

9706:- Female, married, age 21; entered Oct. 24, dying same day. Bullet wound in abdomen. Autopsy showed injury to abdominal aorta with fatal hemorrhage.

9704:- Male, age 38; entered Oct. 24, died Oct. 25. Auto accident; multiple rib fractures and rupture of left arhpadigu'ms cmfwyp mfw vbgkq mfwypaoao left diaphragm; operation showed stomach and small bowel coils in left thorax; these were replaced in per toneal cavity and rent in diaphragm repaired. Death from shock. The question here was whether the operation should not have been delayed until the patient was in better physical condition. This case is referred to the Surgical Committee for consideration.

9277:- Female, married, age 76; entered Aug. 17, died Oct. 1. This old lady had a fractured hip, with history of nephritis and high blood pressure. The thing always dreaded in such cases developed here and she died with broncho-pneumonia.

9554:- Female, age 34, married; entered Oct. 2, died Oct. 10. Vaginal bleeding and mass in right lower quadrant. Exploratory laparotomy and supravaginal hysterectomy, including large blood clot in pelvis. Examination showed ruptured tube with evidences of tubal pregnancy. Death on fifth day following operation. Question:- Is hysterectomy an advisable procedure in a patient suffering the shock of a ruptured tubal pregnancy? This case is also referred to the Surgical Committee for study and consideration.

9384:- Male, widower, age 70; entered Sept. 3, died Oct. 1. Diagnosis of dilatation of heart and chronic parenchymatous nephritis, aortic insufficiency and stenosis, myocarditis. Showed loud diastolic and systolic murmurs over aorta, no shock or thrill. B.P. 160/70. Probably a vascular nephritis. Did time permit we should like to discourse on the diagnoses of myocarditis so frequently seen on our records.

9663:- Male, age 80; entered Oct. 18, died Oct. 19. Strangulated internal hernia and bowel obstruction therefrom. No external evidence of the hernia. Died soon after operation.

9597:- Three weeks old baby, entered Oct. 9, dying same day. Autopsy showed enlargement of thymus and patent foramen ovale. Mother had given ten drops of paregoric. Several points of interest in this case, but we are taking the time on some other cases.

9553:- Boy, age 15, entered Oct. 2, died Oct. 3. Had a well developed case of tetanus from wound on heel three weeks previously. Lived only a few hours.

9605:- Newborn babe, premature. Mother had necrotic placenta. Perhaps deserves some study but will not get it this time.

The three cases selected for comment are the following:

Case 9613:- Female, married, age 64; entered Oct. 5, died Oct. 7, from arsenic poisoning.

Case 9606:- Six months old baby, entered Oct. 10, died Oct. 21. Diagnosis of tuberculous meningitis; spinal fluid examination was made, and tubercle bacilli not found. History of close contact with case of tuberculosis.

Case 9621:- Female, single, age 55, entered Oct. 12, died Oct. 14. Note that she was suffering from asthma and was irrational. No diagnosis history, or physical examination on record.

With regard to the case of arsenic poisoning. One of the interesting developments of this case was the flowering forth in connection therewith, of a legitimate successor to Sherlock Holmes. This apotheosis of deductive genius took place in the Path-

ological Laboratory and involved one Mr. Clarence N. Boynton, serologist and chemist. With the modesty which so characterized his illustrious predecessor, as delineated in the stories by Sir Conan Doyle, Mr. Boynton's name does not appear in any of the newspaper accounts of this case of poisoning, the mystery of which he solved without moving out of his chair, and the duty devolves on me to do him justice in the matter. When first called on to make a toxicologic examination of the stomach contents from the two poisoned people, he found arsenic; this satisfied the medical phases of the case and the physician, having thus established the cause of death, turned the case over to the coroner, and these comments are intended as a criticism of the procedures of coroners under the Arizona statutes which are now more than a thousand years out of date. Early in the development of the case Mr. Boynton deduced certain facts and called the coroner on the phone with the suggestion that some one search for an extra can of baking powder and, if more than one were found, bring all to the laboratory for analysis. For some reason this was not done. The defunct lady had a brother, a detective from Denver, who came to Phoenix with the determination to solve the mystery; Mr. Boynton made to him the same suggestion, but the detective, apparently unable to apprehend the ratiocination of higher intelligence, failed to act on it. This was an interesting parallel to the situations which Sherlock Holmes was wont to encounter with the official detective agencies. After the two victims of poison had been buried, some other member of the family sent still other detectives to Phoenix to see if they could not learn the source of this arsenic. Mr. Boynton suggested that they search for two baking powder cans, and when they were found, to bring them both to the laboratory, and he (Boynton), would almost guarantee that one of them would contain the elusive arsenic. They soon returned with two baking powder cans one of which contained pure arsenic, bought and partly used by a former occupant of the house as a rat poison; this poison the wife had mistakenly used for baking powder in making the morning hot cakes for her unfortunate spouse. Mr. Boynton will not wish to have any more such cases brought to him, unless they prove to be beyond solution by the average intelligence. His deductive skill, while entirely capable of solving such elementary matters as this, is devoted to the solution of baffling laboratory problems connected with clinical medicine.

This case illustrates very well the necessity for a different type of coroner than the Arizona statutes provide for its citizenry. Time does not permit a discussion of the proper functions, qualifications, and activities of a coroner, although they are well worth studying. The office of coroner was established in medieval times, the function of the officer being to see that the personal belongings of people found dead should revert to the crown, the name originally being "crowner." Out of this conception has developed the modern office of coroner, when it has developed at all, who is empowered to investigate into the causes of death occurring without evident reason, and to set in motion the machinery of the law when a crime is found to have been committed. In Arizona, as in many states, the office has never advanced beyond the fourteenth century idea, even the very wording of the statute being medieval, the justice of the peace being ex-officio coroner and his chief stated duty being to see that the personal effects of people found dead are turned over to the county. He is required to investigate the causes of death, though it is not required that he have any qualifications whatsoever for such a delicate task, either in medicine or law. In more enlightened communities, the coroner is an appointed officer and must have training in the duties of the office, which are partly legal and partly medical.

The death of the six months old baby with tuberculous meningitis with history of close contact with an open case of the disease, shows that society is still murderous in its organization. The only clinical feature of the case worthy of comment is the failure to examine the spinal fluid for chlorides. That is the only test, except search for bacilli, which could have thrown light on the suspicion of tuberculous meningitis.. The chlorides normally are about 720 mgm.; if they fall below 650 mgm., tuberculous meningitis is almost certainly present. The clinician sending in spinal fluid must either state what disease he suspects or must have knowledge enough of laboratory tests to ask for the indicated specific tests. If he did not do this in this instance, the laboratory cannot be blamed for omitting the chloride test which is not a routine examination; if the clinician did say he suspected tuberculous meningitis, then the laboratory is at fault for not performing the test for chlorides and reporting the result.

In connection with this case it has been interesting to review some of the developments in the campaign to prevent tuberculosis in infants and children. In France and some other European countries this child would have been given BCG, (Calmette's vaccine). The American medical literature contains some interesting and violently divergent viewpoints on the use of this vaccine.

BCG vaccine is the discovery of Prof. Calmette, Assistant Director of the Pasteur Institute in Paris and his co-worker, Guerin, a veterinary surgeon. It consists of living, slightly virulent tubercle bacilli, bovine type, cultured on five per cent ox-bile glycerine for 21 years. It is claimed to have no virulence for the human being and is given to newborn infants during the first ten days of life. Each dose consists of 10 mgm. of moist bacilli in 2 c.c. of saline solution, containing approximately 1,200,000,000 bacilli. It is fed the babies by mouth on the third, fifth and seventh days of life. Up to a year ago approximately 200,000 infants had been vaccinated with BCG all over the world. The Public Health Committee of the League of Nations has expressed guarded approval of this vaccine. It is still being experimented with in this country, and varying expressions about it have appeared.

Petroff is the most vigorous opponent to the use of the vaccine; he gives a very critical and somewhat caustic analysis of Calmette's claims and statistics in the Am. Review for Tub. for September, 1929. In the same journal, Kareszturi and Park, of New York, recount their experiences up to that time and close with the cautious summary: "Oral BCG vaccination is relatively simple; it is harmless; it gives some immunity whose degree and duration cannot as yet be determined."

Gerald B. Webb (J.A.M.A., Nov. 9, 1929), closes a very excellent article with the statement, "I am of the opinion after careful study of the literature and after personal investigations and experiments, that BCG should be administered to infants born to parents with open pulmonary tuberculosis. With further proof of the harmlessness and efficiency of the vaccine, it may be found that all newborn infants should be vaccinated against tuberculosis with BCG." In the general discussion Pottenger, with his usual suavity, and Matson more bluntly, disagreed with Webb's conclusions. Petroff fears that

the advent of a vaccination method of preventing tuberculosis may cause a relaxation of the present methods of curtailing the disease by education, isolation and general hygiene. It is a question, however, on which well informed medical men should be posted. Looking over the list of published articles for the year between June, 1929 and June, 1930, there have been more than 150 articles on BCG vaccine, but only four in the American literature, and all of those last year. There have been none so far in 1930.

With regard to the case where no diagnosis, history or physical examination has been furnished, and concerning which the hospital historian says she can get no information from the doctor. Personally, we would like to know the technic of this doctor in getting into and out of the hospital, without giving the historian some information. We would like to learn the system, because we have found it impossible of accomplishment, without ungentlemanly rudeness to a very pleasant and charming young lady. This doctor apparently has reached the stage of life where, in addition to being insensible to his obligation to the hospital which shelters his patient, he is also deaf and blind to the delicacy of feminine appeal. When a doctor is blind to charm, deaf to duty, and insensible to criticism, the only commendable and useful thing left for him is to become a personal subject for study by the Records Committee,—preferably after a thorough autopsy.

PITUITARY DISEASES
Review of Current Literature

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Before opening a discussion on the review of literature regarding the pituitary diseases, I will first outline a few of the anatomical and physiological facts, or hypotheses, rather, that seem to dispose the various clinical syndromes. Anatomically the pituitary body is divided into three portions: pars anterior, pars intermedia, and part posterior. Clinically, however, the pars intermedia and pars posterior are rather difficult to outline. The hormone of the pars anterior affects chiefly the osseous tissue and the genitals, with hypersecretion producing gigantism and acromegaly after growth has ceased. The secondary effects on the dermal system are temperature, pulse, blood pressure and mental function. The hormone of the pars posterior chiefly affects metabolism. Hyposecretion produces increased carbohydrate tolerance of adiposity; hypersecretion, decreased carbohydrate tolerance with polyuria.

Among the different authors and workers on the problems there is much discussion regarding the variation of increase of carbohydrate tolerance from the condition of hyposecretion. Among these authors may be found the names of Engelbach, Sachs, McDonald and so forth.

In the clinic of Fred H. Mackay, in the Montreal General Hospital, he has attempted an anatomical classification of the various parts, or rather, a diagramatic scheme for dissection of the various parts, to attach dysfunction and resultant syndromes. From the dysfunction of the anterior lobe and the pars intermedia, he includes the basis for Frolich's syndrome, a disease of childhood with increased sugar tolerance, adiposity and inflammation of the genital system. On the other hand, hyperfunction before puberty producing gigantism and acromegaly and puberty, with a decreased carbohydrate tolerance, a stimulation of the pars sympathetic system with its action, of course, on plain muscle.

In a review of cases, by Henry J. John of the Cleveland Clinic, which showed clinical signs of hypertension, there were definite diabetic tendencies, with a definite decrease of carbohydrate tolerance in all. Considering that there should be an increased tolerance rather than a decreased, opens the subject to opinion, as it is not based on facts and reports quite thoroughly that there is a great deal more yet to know regarding anatomical isolation and pituitary function. However, we do know that dysfunction produces definite clinical pictures, and until further investigation can be made, scientific therapy will be impossible.

E. B. Fink, of Chicago, has classified a group of pathological entities. Pathologically, however, the majority of cases are determined only at autopsy. Those patients represent a clinical picture of brain tumor without localizing symptoms. The pathological changes that were noticed were most all of internal hydrocephalus, with marked protrusion of the floor of the third ventricle, thinning, an almost complete atrophy of the tuber cinereum and distention of the infundibulum, producing secondary optic atrophy and pressure on the hypopysis. Microscopically, the changes in the hypophysis indicated incomplete ripening of the epithelial cells of the anterior lobe. There was an entire absence of the symptoms which, from experimental evidence, might be expected to appear as a reuslt of compression of the tuber cinereum and the typothalamic region (polyuria, adiposo-genitalus, dystrophy.)

Among the mental disturbances associated with pituitary disorders, Wm. C. Menninger, of Topeka, Kansas, concludes from forty-two cases that there is no uniformity of association of any particular mental picture with any type of pituitary disorder. An unsatisfactory attempt to classify the mental reaction types under various pituitary groups disclosed: (1) a majority of the cases of pre-adolescent hypopituitarism showing some degree of retardation in intellectual development; (2) a majority of postadolescent hypopituitary cases presenting the schizoid picture; (3) predominance of cyclothymiac reaction in the late hypopituitarism. Such observations cannot be assumed to prove the relationship between any specific type of dysfunction and any specific mental reaction type. However, there is an intimate association between mental disorders and dyspituitarism in: (1) the concomitant development in children of pronounced pituitary disorder and mental retardation; (2) the concomitant onset and development of behavior disorder and the physical signs of dyspituitarism; (3) the subsequent development of mental changes directly dependent on the physical signs of dyspituitarism.

During the last year, Putnam, Benedict and Teel, of Boston, have made extensive studies in canine acromegaly by injection of anterior-lobe pituitary extract, and they have drawn the following conclusions: (1) Dogs which received daily, for fourteen months, a sterile aqueous extract from the anterior lobe of beef hypophyses, grew to almost twice the weight of the litter-mate control. They developed, among other conditions, enlargement of the acral parts, polyphagia, asthenia, sialorrhea and spontaneous lactation. The animals succumbed to myocardial failure and edema of the lungs. A skeletal overgrowth with hyperostosis, was present. There was a generalized splanchnomegaly, affect-

ing the thyroid and genital tract most strikingly. The thyroid was hyperplastic. There were adenomas of the suprarenal gland, and the ovaries contained ripe but unruptured follicles. (2) The condition produced appears to merit the designation of experimental acromegalia.

Edwin P. Bugbee and Oliver Kamm report investigation of the posterior lobe of the pituitary gland as follows: The posterior lobe produced two active principles. An oxytocic principle which causes contraction of the uterus and a pressor principle which raises blood pressure. These two active principles, before separated, are obtained in the form of a white, stable, water-soluble powder of great potency. The solutions of these separated active principles have been recombined to form a pituitary extract identical with the original from which they were prepared, thus proving that no decomposition has taken place. The oxytocic principle, which has been named alpha-hypophamine, causes contraction of the uterine muscle when injected into the normal animal, and contracts isolated uterine muscle when applied by contact. It is nearly free from action on any other form of smooth muscle. The pressor principle, which has been named beta-hypophalmine, does not affect uterine muscle, but stimulates other smooth muscles. It raises blood pressure, stimulates peristalsis in the gastro-intestinal tract, which has both a diuretic and anti-diuretic effect. It causes expansion of the melanophors in the skin of frogs.

The reports so far in this paper represent work that has been done within the last two years. There are a great many other treatises but they all group definitely around individual case reports with various and sundry forms of treatment, all of which differ daily in the intensity of the administration of extract in various forms and methods.

There is another group of pathological entities which come under the classification of brain tumor. The most frequent in occurrence is the adenoma. Fibroma and the rarer types will not be discussed here. They present a definite clinical picture of brain tumor with the clinical signs of headache, choke-disc, vomiting, and so forth. The most prominent localizing symptom of brain tumor is temporal heminopsia bilateri. The patient usually comes in complaining first of some or all of the cardinal symptoms of brain tumor, with a blindness slowly developing in the lateral fields. Other localizing signs may be present, depending upon the size of the new growth, its direction of growth, the anatomical position of the sella turcica. The treatment is surgical. To go into the surgical detail of pituitary disorders and treatment would be entirely too extensive for this treatise.

CASE OF INABILITY TO WALK

(Case 16321, Cabot's Case Records; courtesy of Peter Bent Brigham Hospital. New Eng. Jour. of Med. Aug. 7, 1930, p. 281).

Case History

Housewife of 36 entered December 3, complaining of inability to walk.

The family history and past history are not remarkable.

Present illness: Eight years ago the patient had acute shooting pains in the legs and was given six intravenous and numerous intramuscular injections. The legs were numb and she felt as if she "walked on feathers." Two years ago either leg would give way at times and she would fall, but recover immediately. She began to develop a peculiar gait, and nine months before admission her right leg suddenly ceased to function and could only be dragged along. There was no pain. After seven weeks in bed she found that she could walk, but had to hold on to something to keep from losing her balance. She had no tendency to fall in any particular direction. For the past twelve months her left leg had become progressively thinner. One month ago her hair began falling out evenly over the entire scalp. Three or four weeks ago both legs began to feel cold both subjectively and to touch. For the past four weeks the tips of her fingers had felt numb. For the past eight weeks she had often felt as if she had to void urine, but could not do so.

Physical examination at admission showed a fairly well nourished woman with prominent frontal bones. Scant, fine brown hair; no spotty loss of hair. Skin dry, with fine scaling. Left pupil egg shaped and larger than right; both reacted to accommodation but not to light. Retinal examination negative. Blood pressure 100 80. Heart, lungs and abdomen negative. Biceps and triceps reflexes hyperactive. Pain sensation absent in tips of all fingers. Deep sensibility present throughout both arms. In the legs the Achilles and Oppenheim reflexes and patellar reflexes were absent. No ankle clonus. No Babinski. In her toes she had no sense of perception in space. Heel to knee test showed marked loss of coordination. Marked ataxia and positive Romberg on walking and standing. Both legs markedly hypotonic. Heat and cold could be differentiated. Both legs of normal temperature. Pain sensation was absent over both legs throughout. The left leg showed diminished sensation to touch below the middle third of the tibia. On the right, pin prick and light touch were not appreciated below the upper third of the tibia anteriorly and below the Achilles tendon posteriorly. Vibration sense was absent in both legs.

Clinical and laboratory notes. For the first ten days of her stay the temperature, pulse and respiration were normal; she then had a slight chill, nausea, and vomiting and the temperature rose to 102° with pulse 100, following which the temperature remained between 99° and 102° for the remainder of her stay, with pulse of 100 to 120 and respirations 20 to 30. The urine was negative until the thirteenth day, when it was found to contain 15 to 25 leukocytes per high power field. All subsequent urine examinations showed specimens loaded with leukocytes. The blood on admission showed hemoglobin 70 per cent (Talqvist), 3,780,000 red cells, 13,250 leukocytes with 83 per cent polynuclears. The smear showed moderate achromia, marked anisocytosis and poikilocytosis, no stippling. The leukocyte count on December 13 and for the four following days was 12,500, 15,000, 12,800, 16,400 and 24,800; December 21 24,600, December 22 23,000, December 24 35,000, December 26 53,000. Wassermann positive, Hinton negative, modified Hinton positive. Stools not remarkable. Lumber puncture December 3: fluid clear, cell count 4, globulin negative, gold curve 4443331 (positive type 2), total protein 60, Wassermann (spinal fluid) negative. Lumbar puncture December 23: the spinal fluid was under a very low pressure, with practically no rise on jugular compression; cells 5, globulin (Panly test) ++, ammonium sulphate negative. Gastric analysis was essentially negative.

Course. For the first nine days in the hospital the patient's course was uneventful. On the tenth

day she had a chill, nausea and vomiting, with temperature rise to 102°. The temperature continued as given. On examination there was slight dullness over the left upper chest with fine crackling rales and increased breath sounds. She raised no sputum. The respirations never went above 30. An x-ray film of the chest next day was normal. On the fifteenth day the level of anesthesia was found to be unchanged since admission. The bladder showed retention of urine. She was catheterized several times following this and at other times was incontinent. She was given two doses of mercury succinamide intramuscularly and two of neoarsphenamine, but after the onset of temperature was given daily mercurial inunctions instead. She continued to grow weaker and remained unconscious for the last five days, with no other change except slightly weaker pulse. Twetny-four days after admission she suddenly became cyanotic and the respirations ceased.

The following diagnostic summaries were presented for this case at Phoenix Clinical Club, Sept. 29, 1930:

Dr. F. C. Jordan, Phoenix, Ariz.

This would be a classical case of tabes. The absence of reflexes, the Argyll Robertson pupil, the shooting pains in the legs, the ataxia, the sensory disturbances, are classed as the pathognomonic signs of tabes. There is an absence of the gastric crises and other similar pains that are found in nearly all cases of tabes. The gold curve is not like that of tabes but of general paresis. In paresis you would expect headache, speech disorders, behavior disorder, mental deterioration; none of these were present in this case. Syphilitic meningomyelitis, when affecting the posterior portion of the cord first, may have identical symptoms with those of tabes; usually there are more sensory findings, with pains more continuous and limited to the roots involved; ataxia is slight, if present; Romberg's sign is usually not present; muscular atrophies are not found in tabes but are present in syphilitic meningomyelitis. The chills from presence of many pus cells represent a terminal lesion which is quite a common termination of syphilis of the central nervous system; she probably had a cystitis or pyelonephritis, or a terminal broncho-pneumonia. We believe that this case was diagnosed tabes. Our diagnosis is (1) tabes; (2) syphilitic meningomyelitis with marked involvement of lower posterior cord. A sepsis, probably a pyelonephritis and broncho-pneumonia as terminal lesions.

Dr. Frank J. Milloy, Phoenix

This is a case of a patient with tabes dorsalis who has developed an acute terminal condition. This apparently was either an acute renal infection or an acute pulmonary condition. There is not much on which to base a suspicion of acute renal condition except the leukocytes in the urine. The very high white count strongly suggests a pulmonary condition. The few physical findings and the kind of death tend to support this suspicion. The picture does not exactly fit with pneumonia and I believe it must have been a pulmonary embolus with infarct.

Dr. Howell Randolph, Phoenix

This is a clear case of syphilis of the central nervous system, either alone, superimposed upon, or complicated by, some other neurological condition. No mention of mental symptoms is found in the history and the gold curve is strongly against general paresis. Practically all of the symptoms are explained by tabes dorsalis, although the trophic changes are a little more extensive than usually seen. Polyneuritis is fairly well ruled out by absence of pain over the peripheral nerves. Multiple sclerosis might give this picture, but the Charcot triad is not mentioned; namely, nystagmus, scanning speech and intensive tremor; multiple sclerosis may, therefore, be left out of consideration. Syringomyelia characteristically shows dissociated anesthesia. The immediate cause of death was probably pneumonia. However, there was a definite cystitis and probably pyelitis. Diagnosis: Tabes dorsalis; terminal pneumonia.

Dr. Harlan P. Mills, Phoenix

The history and findings of the physical examination suggest that we have a neurological condition, as the symptoms and signs point to involvement of the central nervous system. There was probably no definite complication up to the tenth day in the hospital. Lightning pains, paresthesias, partial paralysis, trophic disturbances, loss of deep reflexes of lower extremities, with partial anesthesia and loss of coordination, the pupil changes, all point to lesion of lower neurons, and would be consistent with diagnosis of tabes dorsalis. However, the spinal fluid findings are not characterstic, a normal cell count, negative globulin and gold curve of 4443331 not fitting, with this diagnosis, this latter being the curve of paresis; however, the normal cell count and negative spinal fluid Wassermann would almost rule out paresis. The low pressure and absence of rise on jugular compression suggest some degree of spinal block. On the tenth day a complication developed, with chill and rise of temperature, leukocytosis and pus in the urine. The urinary retention which is common in tabes evidently resulted in back pressure, with hydronephrosis and later a pyonephrosis. Very probably a terminal pneumonia developed as a terminal complication. Diagnosis: Tabes dorsalis, with some general cerebrospinal involvement; pyonephrosis; bronchopneumonia.

Dr. O. H. Brown, Phoenix

The diagnosis of syphilis in this woman was evidently correct. The positive Wassermann after extensive treatment, substantiates the diagnosis. The history of numbness, snesation of "walking on feathers," peculiar gait, difficulty in walking and inability to void, taken with the examination findings of Argyll-Robertson pupil, absent patellar, achilles and other feet reflexes, absent muscle and joint sense in toes, ataxia of legs, positive Romberg, hypotonia of legs, absence of vibration sense, definite skin anesthesia, etc., especially with the history of syphilis, warrant a diagnosis of tabes dorsalis. There are peculiarities in the spinal fluid tests. Ordinarily the Wassermann will be positive in spinal fluids of tabetics. As nothing is reported of the spinal fluid Wassermann it presumably was negative or was not done. The gold chloride curve is a bit unusual; there should be seven figures; I suppose the two zeros have been omitted from the right. About half the tabetics have a paretic curve, such as 555543200. A typical syphilitic curve runs 223455300. Men who are accustomed to doing the gold chloride test say that it is unusual to have a 444333100 reaction, that the indications are that the solutions were insensitive and that the fours should be read as fives. In such an event the reaction would be a paretic reaction. Hazen says about half the tabetics give a paretic reaction. The

other half give a syphilitic reaction in which the high point is in the middle. I believe it necessary to conclude that the gold chloride test supports the diagnosis of tabes. The cell count is normal which is unusual. The increase of cells results from the meningitic feature of tabes. Evidently in this particular case the meningitis is negligible. The total protein is high; this is consistent with the diagnosis of tabes. The negative globulin of the first test is unexpected in tabes. The low tension of the spinal fluid is also unusual in tabes. Further the fact that there was practically no increase of spinal fluid tension from jugular compression suggests spinal canal obstruction between the brain and the point of withdrawal of the fluid.

The history and the examination findings both point only to the dorsal columns being affected. The changes are bilateral, therefore in the cord rather than in the brain. The fact that there are no symptoms of involvement of the lateral or ventral columns rules out simple myelitis and multiple sclerosis. It seems unlikely that a neoplasm could so nicely attack just the dorsal columns. I can arrive at no other diagnosis than that of tabes to explain the symptoms from the nervous system.

The development of chill, nausea, vomiting, fever, increased pulse, leukocytosis and unconsciousness indicate the developmnet of an acute condition which was responsible for her death. The findings in an area of the lungs of dullness, cracking rales and increased breath sounds would suggest the development of pneumonia which is not an infrequent cause of death in tabetics. The lack of increased frequency of respiration, of sputum, of cough and the negative x-ray rule out pneumonia. The other outstanding finding was pus in the urine. The number of cells were few at first but soon numerous. The fact that she had inability to void, even when the urge was definite, and then incontinence, suggests a long continual damming back of urine onto the kidneys. Such an issue is not an infrequent complication of tabes. The urinary bladders in tabetics are prone to develop trabeculae. These may prevent expansion of the bladder so that serious retention might be easily overlooked.

The rapidly rising leukocytosis to a high level, the persistent fever, the five days of unconsciousness and death are evidence of a marked focus of infection and general sepsis. The conclusion seems warranted that the back pressure of urine damaged the kidneys and that infection developed, resulting probably in abscess formation. Diagnosis: Sepsis; nephritic abscess; urinary stasis and destruction of kidney substance; uremia; tabes dorsalis; syphilis.

Dr. Richard C. Cabot, Boston

In most of the cases which we have discussed at this hospital this year the record starts in this way: "Family history and past history not remarkable." So far as concerns the family history that is what we usually have to say. It is in only a very small percentage of cases that we get anything of value out of the family history.

The sharp shooting pains in the legs were diagnosed, I suppose, as the lightning pains of tabes and she was given antiluetic treatment. Tabes is more common in men than in women.

The history of the present illness certainly points to some disease of the spinal cord. Of the diseases of the spinal cord tabes is suggested on account of the pains, the pupils, the ataxia, the bladder symptoms, the loss of certain reflexes, the hypotonicity and the positive Wassermann test.

The prominent frontal bones were possibly related to syphilis. The skin makes us think again of syphilis.

The description of the pupils is that of Argyll-Robertson pupils.

It is a pretty good rule that any sort of queer anomalies of sensation are consistent with tabes. It is hard to name any that are not.

We look for some intercurrent infection as a cause for all that rise in temperature and in the leukocyte count. It seems to be a urinary infection.

The abnormalities in the blood are perhaps due to the same condition that later caused the pus in the urine and the temperature. The smear is characteristic of secondary anemia. The cell count in the lumbar puncture fluid is against the diagnosis we have been making, but it is consistent with it in patients who have been under treatment for a good while.

It would be natural to suspect pneumonia and it was rather surprising to have a normal x-ray.

We can be positive she had chronic disease of the spinal cord. We can be positive she had urinary infection. I see nothing against tabes. I do not see how anyone ever can exclude multiple sclerosis in a case like this. It is a dangerous thing to exclude it in any obscure disease of the central nervous system. I am in favor of tabes.

Dr. S. Burt Wolbach, Boston

At post mortem the spinal cord showed on section sharply demarcated translucent areas scattered without any uniformity in the posterior columns, the anterior columns, the lateral columns. Upon examination of the brain we found scattered throughout the white matter gray or dark gray areas widely distributed. In the occipital region there was quite a large lesion. Histologically these lesions were characteristic of those described as multiple sclerosis, the loss of myelin sheaths accompanied by very marked gliosis. The more recent lesions contained lipoid laden cells and perivascular lymphoblastic infiltrations such as have been described in multiple sclerosis.

There was an acute bronchopneumonia.

Then we had a finding which we cannot account for satisfactorily, a thrombosis of the lateral sinus, puriform thrombi with leukocytes and bacteria demonstrable in the smear. I cannot explain this, although I think it is of some importance in explaining the terminal events in the patient's life.

I forgot to mention that there was cystitis and pyelitis. We interpret that as of paralytic origin.

There were thrombi in the pulmonary arteries I presume that and the lateral sinus were connected.

Dr. Cabot: Anybody who is willing to exclude multiple sclerosis in such a case when he remembers the extraordinary number of clinical pictures which we have seen associated with it is a rash man. I think we can scarcely exaggerate the variety of clinical pictures we can get with multiple sclerosis. The only thing that was much against tabes was the cell count in the spinal fluid, and if there had been very active treatment recently that would not have been at all extraordinary. Certainly there are few cases of tabes that show no increase of cells.

Q. Did any of the clinicians who saw this patient make the diagnosis of multiple sclerosis?

Ans. No; they merely brought up the possibility.

ANATOMIC DIAGNOSIS

Multiple sclerosis.

Acute bronchopneumonia.

Thrombosis of the lateral sinus.

CASE OF UNEXPLAINED HEMATEMESIS

(Case 15452, Cabot's Case Records, from N.E.J. of M., Nov. 7, 1929, p. 948).

Case History

First Admission. An American steamfitter fifty-eight years old was sent in by a physician July 3, nearly three years before his final admission, for study of anemia. The patient's own chief complaints were epigastric pain, rapid heart and weakness. He was so deaf that the reliability of the history is doubtful.

A year before admission he began to have a dull ache in the left epigastrium extending to midepigastrium and radiating to both lower chests, more often to the left. It occurred two or three times a week, usually about half an hour after eating, and was relieved by hot water and soda. It was accompanied by eructations of gas with partial relief. When untreated it usually lasted two hours. By regulating his diet, especially by avoiding greasy food, he found the attacks were infrequent and not troublesome. Seven months before admission he found on getting up in the morning that his heart was very rapid. He had no other cardiac symptoms. He had, however, often been dizzy in the past seven months. He stopped working for three months. The attacks of palpitation continued to occur at regular intervals with and without exertion and excitement. He was very weak during the attacks and sometimes in the intervals. In February he came to the Out-Patient Department. Examination showed the heart not enlarged, action slow, an apical systolic murmur. An electrocardiogram showed normal rhythm, rate 70. X-ray showed no evidence of organic disease of the stomach or duodenum. Basal metabolic rate -8. Blood: reds 5,070,000, slight variation in size and shape. In April he returned to work for six weeks. Then he had to stop on account of weakness and palpitation. For several months the attacks of epigastric pain had occurred after nearly every meal. During the past six weeks, he had had frontal morning headaches, relieved immediately on lying down. Two weeks before admission these stopped. He had recently noticed black stools and he thought some red ones. He had had no colic, vomiting, hematemesis, nausea or jaundice. He had some gas. He had lost possibly ten pounds since the onset. For the past three weeks he had felt better.

His family history is unimportant. His past history shows gonorrhea thirty-five years before admission, with no recurrence, many boils lanced eight years before admisson, and "catarrhal deafness" for six years.

Clinical examination showed an obese man lying quietly in bed in no apparent distress. Skin and mucous membranes somewhat pale, with only a suggestion of lemon yellow tinge. Heart moderately hypertrophied. A soft systolic murmur at the apex, transmitted to the axilla. Blood pressure 160/90. Abdomen soft; no spasm, tenderness or masses. Left indirect inguinal hernia and absence (congenital?) of left testicle. Rectal examination negative.

Uhine: amount not recorded, no abnormalities except 2 to 5 leukocytes at 1 of 44 examinations. Blood: 4,900 to 7,100 leukocytes, 76 to 60 per cent polymorphonuclears, hemoglobin 50 to 70 per cent, reds 1,850,000 to 3,900,000, one smear normal, one showed slight achromia, a third some poikilocytosis with an occasional tailed cell, marked anisocytosis with many macrocytes, platelets reduced little if at all. Wassermann negative. Fasting contents of stomach: 10 c.c. cloudy grayish sour material, free HC1 4, total HC1 32, guaiac negative. Test meal: 22 c.c., similar material, free HC1 32, total HC1 52, guaiac negative. Stools negative.

X-ray examination with a barium enema showed no evidence of organic disease of the colon. Examination of the chest showed the lungs clear except for several calcified glands at each hilus. The cardiac shadow was slightly increased both to right and left. (Right 5.7 cm., left 9, chest 26.)

Pulse 100 at admission; otherwise chart not remarkable.

The patient did extremely well on the Minot-Murphy diet. He had no attacks of palpitation or other symptoms. July 14 he was discharged.

History of interval. After leaving the hospital he continued to do very well on the liver diet, though he still had attacks of palpitation. He was troubled with gas by mouth and by rectum, often accompanied by dull burning sub-sternal pain usually occurring at bed time, never severe, relieved by belching and soda. Occasionally he induced vomiting for relief of gas. For three months before his second admission he had felt in relatively excellent health except for inconvenience from his inguinal hernia. Three weeks before his second admission this became irreducible and very painful.

Second admission. December 6, seventeen months after his discharge, he reentered.

He was now well nourished, not obese. The hernia was successfully reduced on December 24. Then he vomited coffee grounds material and passed tarry stools for the next four days. On examination December 28 his skin and mucous membranes were pale. Rectal examination showed tarry stools which gave a strongly positive guaiac.

Laboratory data after December 28. Urine: amount not recorded, no abnormalities except rare leukocytes at four of five examinations. Blood December 28: hemoglobin 55 per cent, reds 2,208,000, no achromia (reds showed more hemoglobin than normal), marked anisocytosis with scattered macrophages, moderate poikilocytosis; intense polychromatophilia, no stippling; 10,000 leukocytes, 70 per cent polymorphonuclears, numerous young polymorphonucleais and others with multilobular nuclei; reticulated cells 13.1; platelets appearing normal. Clotting time 4½ to 5 minutes. Fragility test began .46, complete .38. Non-protein nitrogen 31 mgm. January 9 hemoglobin 65 per cent, reds 3,800,000 slight achromia and variation in size, a few diffuse basophilic cells, 6,500 leukocytes, a few immature polymorphonuclears, platelets normal, reticulated cells 1 to 2 per cent.

Chart after December 28 not remarkable.

December 31 the stools gave a very strongly positive guaiac. The patient was symptom free, however, and after January 1 the stools were negative. January 12 x-ray showed a large accessory pocket arising from the posterior gastric wall just off the lesser curvature. The rest of the stomach and duodenal wall were normal. At twenty-four hours the head of the barium column had reached the rectum; the pocket in the stomach wall remained filled.

The patient continued to gain. A surgical consultant advised postponing operation as long as the patient was comfortable on medical treatment. January 23 the patient was discharged.

History of interval: He kept faithfully to the re-

gime prescribed, gained in strength and weight and was symptom free for the first seven months except for gas and sour eructations. Seven months before his third admission he began to have cramp-like pains in the medepigastrium, constipation and gas. X-ray showed a "pocket in his stomach." Four weeks before readmission he began to have slight cramp-like, gnawing pain in the epigastrium coming several times a day without relation to meals and lasting only a short time. April 21, after feeling very well, he had itching over the whole body followed by a chilly feeling, then by hot flushes. Later in the day he passed dark red stools.

Third admission. April 23, fifteen months after his discharge, he reentered.

On examination he was still well nourished, though he had perhaps lost some weght. The arterial walls were palpable and tortuous. Blood pressure 155/98 to 127/78. The fundi showed arteriosclerosis.

Before operation urine much as before, hemoglobin 50 to 60 per cent, reds 2,840,000 to 3,850,000, moderate achromia, platelets normal, 8,800 leukocytes, 72 per cent polymorphonuclears. Hinton negative. Stools tarry at three of seven examinations, guaiac strongly positive at four, positive at two more.

Before operation chart normal except for a rise in temperature (100°) and pulse (111) on April 29.

The patient had no symptoms. The stools continued however, to show a positive Guaiac. May 11 operation was done. The wound showed some serous discharge and was somewhat slow in healing. Following a sneeze it was found wide open. During anesthetization for resuture the patient strained, forcing out loops of small intestine. He developed a pneumonia. The wound showed pus. June 7 he died.

Discussion by Dr. Howell Randolph, Phoenix

There are very few symptoms in this case that can not be explained by one diagnosis, and that diagnosis related to something wrong with the stomach or upper gastro-intestinal tract. The chronicity and periodicity of the attacks are characteristic of ulcer of the stomach or more commonly ulcer of the duodenum.

Stewart, in 1500 necropsies, found 8.7 per cent ulcers, equally distributed between stomach and duodenum. He states that the chronic ulcer is more common in the duodenum, 3.9 per cent against 1.9 per cent chronic ulcers of the stomach. Acute ulcers of the stomach are usually multiple although chronic gastric ulcers are almost invariably single. Perforation and hemorrhage from gastric ulcer are almost always found in the acute type of ulcer. If symptoms of ulcer have persisted for a long time prior to hemorrhage the chances are that at the post mortem acute secondary ulcer will be found to be the site of the hemorrhage.

In this case the acidity is not altered to any extent. Few clinicians now accept the presence of high acidity as a factor in the etiology of gastric ulcer. Hyperchlorhydria is probably secondary to ulcer irritation or to accompanying surrounding acid gastritis. High acid has been shown not to be the cause of the pain in ulcer as the more severe pain is not found to correspond to the high point on the acid curve. Pain has been shown to be most severe at the time the paristaltic wave passes the site of the ulcer and the duration of the pain spasm is definitely related to the duration of the spastic contraction of the paristaltic wave at the site of the ulcer. Acid values vary more with the site of the ulcer than with the duration. If the ulcer is not placed near the pylorus the acid values are seldom much altered. If there is a certain amount of stasis due to pyloric spasm, the acid will rise, evidently in an attempt to open the pyloric sphincter. The symptom of pain after meals which has been interpreted for so long as diagnostic of ulcer, is of considerable value in localizing the lesion. If located on the fundus of the stomach, pain will come on in one-half to one hour after meals, depending on the size of the meal and the extent of the ulcer and the amount of pyloric spasm. If located at the pylorus, pain will come on one to one and a half or two hours after meals, and if pain comes on five or six hours after meals the location of the lesion is most likely to be duodenum. If pain becomes more constant and more of a soreness, the probabilities are that the ulcer has become of the perforating type and that adhesions have formed to some other viscus.

It may be that a history of relief from pain in certain postures may be elicited in this type of case.

The string test is one which has been used with some success in locating ulcers. This consists of requiring the patient to swallow a small bead tied to a string which is long enough to allow the bead to pass down as far as the upper duodenum. After the string has been in place all night it is removed. Bile stains will be seen at the site of the ampulla of Vater and ulcer stains will be shown at some point higher on the cord. This gives the exact distance of the ulcer from the ampulla.

In the present case it would seem that the entire picture is explained by gastric ulcer not discovered on first examination but later perforating to form a diverticulum on the posterior wall of the stomach. Repeated hemorrhages would account fully for the blood changes even to the count which showed color index of more than 1, as this is not an infrequent occurrence in severe secondary hemorrhage. Each hemorrhage has probably been caused by an increase in the ulceration. Carcinoma is hardly likely in this case as patient is well nourished and the hemorrhages are not characteristic.

The cause of death was peritonitis and pneumonia. The stomach pathology was perforating ulcer with diverticulum. There was hypertension and arteriosclerosis which contributed to the causation of hemorrhages.

Discussion by Dr. Orville H. Brown, Phoenix

The criteria to the diagnosis seem to lie in the second paragraph: Indigestion, periodically rapid heart, palpitation, profound weakness, apical systolic murmur, frontal morning headaches, black tarry stools. He had been ill for seven months. Blood count and metabolism were normal. X-ray of gastrointestinal tract was also negative. Presumably the thyroid was normal. The one definite thing in this record, so far, is the cardiac murmur. The blood in stools may be a valuable symptom or it may mean nothing as far as present knowledge goes.

At the time of entering the hospital the heart had become moderately hypertrophied which means dilated and the systolic murmur was transmitted to the axilla. By this time he had become markedly anemic. The anemia, except for the absence of normoblasts and megaloblasts, might be considered

typical of pernicious anemia. The high color index especially was suggestive of pernicious. The color of the blood suggests a bleeding from high up in the gastrointestinal tract. Bleeding from alimentary canal is common in pernicious anemia. The vomiting of the coffee ground material indicates that the bleeding came from the stomach. The acidity of the gastric contents, however, was unusually high for pernicious anemia. Subsequent examinations have nothing to say of the cardiac condition; hence the heart must have improved. The bleeding from the gastrointestinal tract, however, continued and the anemia at times was a serious factor. At his second admission to the hospital an accessory pocket on the posterior wall of the stomach was found. This indicates an ulcer which had probably existed for a considerable period and probably explained the bleeding.

My diagnosis then is: Endocarditis; secondary anemia; gastric ulcer; gastric pocket; pneumonia.

Discussion by Dr. W. Warner Watkins, Phoenix

This is an interesting and profitable case to study, because we have a condition to analyze which persisted more or less during four years, and yet which was not the immediate cause of death. In the end, following an operation for some condition which we have no reason to believe would have killed the patient, he contracted pneumonia and died.

The condition we are to study showed its first symptoms four years before death, by a dull ache in the epigastrium radiating to lower chest; this ache came on two or three times a week after eating and wore off in about two hours if untreated, but could be relieved by hot water and soda. By watching his diet and avoiding greasy foods, he could control the attacks. He suffered like this for seven months, during which time he was often dizzy, with palpitation not related to exertion, and weakness, forcing him to stop work during three months.

Seven months after this epigastric pain started, he came in February to the outpatient department for advice and was examined. They evidently suspected his stomach, his heart, his thyroid and his blood, because they examined all and found results all negative, except slight anisocytosis. In April he went back to work, and had to stop again after six weeks on account of palpitation and weakness, with the epigastric pain after nearly every meal; then he developed frontal headaches and noticed tarry stools.

That is his history for the first year, at the end of which period he came upto his first admission to the hospital,—in July. Since the physical and laboratory examinations which were all negative, he has shown one other symptom of importance; namely, tarry stools.

Have we any other possibilities than those mentioned above, namely:

Organic stomach or duodenal lesion.

Heart disease.

Thyroid disease or other endocrine disturbance.

Blood disease.

The type of pain and the effect of foods would bring the gallbladder into the picture for consideration.

With these things in mind, we pass to the first physical examination. An obese, pale man with only slight lemon tinge, whose heart appears enlarged with systolic murmur, normal blood pressure; no abdominal findings except inguinal hernia. This tells us only that the man is anemic, and anemia with obesity suggests pernicious anemia or anemia of internal hemorrhage. We come to the laboratory examinations with these two things well to the forefront in our minds. Urine helps us not at all, because incomplete. The first blood picture with its leucopenia, reduction in hemoglobin (50) but relatively greater reduction in red cells (1,850,000), normal cell color, variation in size and shape of reds, helps along the idea of pernicious anemia. The other count, showing rapid recovery of red cells, bringing the index below 1, weakens this possibility. Then the acid in the stomach, and negative stools (if they tested for urobilin) takes most of the foundation for diagnosis of pernicious anemia out. Barium enema examination of colon was negative and x-ray of lungs showed them negative, with heart shadow slightly enlarged. Where are we now?

We have insufficient basis for diagnosis of pernicious anemia, but less basis for anything else at this time. They evidently thought the same, because he was placed on the Minot-Murphy diet and sent on his way. He did fairly well, though his stomach symptoms continued during the next seventeen months. He had some palpitation and some trouble with his hernia; this hernia finally became irreducible and brought him back to the hospital in December, 17 months after his previous examination there. His hernia was reduced, and a little over two weeks later he vomitied coffee grounds and passed this tarry blood, when he again gave blood findings suggesting pernicious anemia; hemoglobin 55, red cells 2,200,000 being a plus index, and much variation in size and shape. A few days later his hbg. was 65 and red cells 3,800,000, and less variation.

At this time a barium meal examination of stomach showed an entirely new finding,—an accessory pocket arising from the posterior wall of stomach close to the lesser curvature, which remained filled when stomach was empty after 24 hours. He was placed on medical treatment, which we infer was directed toward the organic lesion of the stomach, which must have been taken for perforated ulcer.

We have all the essential facts and should make our differential diagnosis at this point, if we can ever make it.

Pernicious Anemia:- We put this first, because this was evidently the diagnosis first made by the physician in charge. Pernicious anemia has several characteristics which are well represented in this patient's symptoms. A persistent anemia, with weakness, palpitation, gastric symptoms, preservation of subcutaneous fat, remissions and recurrences in blood picture, hemic heart murmur, all suggest pernicious anemia. This, with improvement on the Murphy diet, would be sufficient for many people, but it should not be enough for those who possess the critical acumen of the members of this Club. Have we a right to diagnose pernicious anemia without achlorhydria, glossitis, sensory nerve disturbances, bilirubin in urine or stools? If we do, we should have a very characteristic and persistent blood picture to base it on, and this we have not. There is nothing anywhere in the blood picture that could not result from hemorrhage and rapid blood repair. The only unexplained symptoms are the weakness and palpitation appearing early, without known preceding hemorrhage. However, it is easily conceivable that this patient may have been having internal hemorrhages and never paid attention to tarry stools. We reject the diagnosis of pernicious anemia.

Heart Disease: We have palpitation, enlargement of heart, weakness, systolic murmur. We cannot find enough basis for diagnosis of heart disease.

Endocrine disease: Too little basis for this.

Liver or gall bladder disease:- Cirrhosis of the liver should always be thought of in hemorrhage from upper intestinal tract, but the course is long and there are no corroborative symptoms. The character of pain and its relation to food should make us think of the gallbladder, and if this pocket had not shown up, and if the hemorrhages had not kept coming, we would have considered it very seriously.

Organic stomach lesion:- Every symptom in this patient can be explained by ulcer of the posterior wall of the stomach, with repeated hemorrhages, and eventual perforation with formation of an accessory pocket. We must assume hemorrhages in the early stage of the disease and must assume that the ulcer existed at the first x-ray examination and escaped detection by x-ray. Posterior wall ulcers are the most easily overlooked. Analysis of the blood findings suggest to me rapid recovery from hemorrhage, rather than remission of pernicious anemia.

There is a secondary anemia of the pernicious type, regarding which Loewenberg has this to say:- "It is a form in which there is a great reduction in the erythrocytes, the presence of embryonic red cells, a moderate reduction in hemoglobin, resulting in a high color index, and little or no change in the differential leucocyte count. It is found in cases of prolonged hemorrhage, malignant disease, malarial cachexia, and certain intestinal parasites. Th peatient is pale, weak and dyspneic."

We have not taken up a discussion of malignant disease of the stomach, though this might well be considered and discussed. We do not see how a differentiation between benign ulcer with perforation and malignant ulceration can be made. The rapidly changing blood picture is more like ulcer with hemorrhage than malignancy.

Diagnosis:- Ulcer on posterior wall of stomach, with eventual perforation, and formation of extra-gastric pocket. Blood findings and accompanying symptoms due to secondary anemia following persistent and prolonged hemorrhage.

Cause of death:- Wound infection and pneumonia subsequent to operation.

Discussion by Dr. Chester M. Jones, Boston

(Abstracted)

All we have up to the second admission is the story suggestive of gastro-intestinal hemorrhage with associated symptoms of anemia. I think the gastro-intestinal symptoms somewhat suggestive of ulcer. They have gone on for a year. Most of our patients with cancer of the stomach present a story of only a few months. This is rather longer than the history of the average case of cancer of the stomach. It is a little unusual in cases of peptic ulcer to have symptoms begin at the age of fifty-seven. We still have to consider two causes of tarry stools, polyposis, a very rare disease, and diverticulitis. Diverticulitis is very rarely associated with hemorrhage. Usually there is hematemesis with cirrhosis before we get tarry stools. But that has to be considered as a cause of the anemia which I believe he has.

The physcial examination does not help us very much. He is a little pale and there is a slight suggestion of lemon yellow tinge. The urine is essentially negative. He has an anemia; there is no question about that. His red count cannot have increased that much in eleven days unless he really had pernicious anemia and responded most promptly to the liver diet. Perhaps the blood counts are not entirely correct because of variations in blood-counting pipettes. It is fair to say this man has an anemia. I do not know how much it is, but it is fairly severe, somewhere near 3,000,000 with a hemoglobin of about 60 per cent. That is certainly not a very low color index, neither is a high one. There is no leukocytosis, and the differential count is normal. A diagnosis of achromia based on the smear is a very dangerous diagnosis to make, because in making a smear we sometimes squeeze the red cells too much, so that they look paler than they are. Those findings are entirely consistent with any chronic anemia, and we have every reason to doubt that Out-Patient Department red count. His doctor was probably correct, as doctors usually are when they send in patients with definite statements about them.

Macrocytes are supposed to be characteristic of pernicious anemia. If they were macrocytes I hesitate before saying the patient did not have pernicious anemia. We may have variation in the size of the red cells in any severe anemia. I am going to put a question mark after that blood smear. It is not sufficient to make a diagnosis on.

The stomach analysis shows that there is no stasis here. Those are perfectly normal stomach contents. That is very definite evidence against pernicious anemia. We have only one case of pernicious anemia on record at this hospital with free acid in the stomach contents, and I believe such a diagnosis here is untenable.

I think the diagnosis made at the first entry was probably questionable pernicious anemia. He left the hospital so far as I am concerned without a diagnosis except anemia, probably due to disease in the gastro-intestinal tract.

He comes in five months after his discharge with most of his symptoms improved. The anemia probably is very much diminished. His gastro-intestinal symptoms are much improved. He comes in for another reason, namely, hernia. One wonders whether hernia alone caused the previous story. I doubt it.

All the blood findings can be explained this time on the basis of brisk hemorrhage. Brisk hemorrhage with a good marrow should give a rapid increase in reticulated cells. It should give polychromatophilia, should give normal or increased platelets, should give poikilocytosis. I do not think the blood findings mean anything more than a normal reaction to fairly brisk hemorrhage.

The clotting time is normal.

The figures for the fragility test are closer together than normal, as is frequently seen immediately after a hemorrhage.

I should say he has a good bone marrow, and his blood has come back as well as any patient's under such conditions might. There is no evidence here of pernicious anemia. I am still against such a diagnosis. Pernicious anemia does not give gastric hemorrhages.

He can have logically one of two things—peptic ulcer which has been walled off and partially penetrated. Certain things fit in with this. The story is not atypical of ulcer more typical of a large diverticulum of the stomach which has become eroded. My diagnosis lies between those two diagnoses. He obviously has a large excavation connected with the stomach.

I do not think we need to consider other causes for hematemesis such as cirrhosis of the liver.

I should like to put in one more possible diagnosis, leiomyosarcoma of the stomach because of the ulcerative lesion. I should say leiomyosarcoma would fit in perfectly with the story. We have this excavation or diverticulum. So far as I know penetrating lesions do not occur in leiomyosarcoma. The

duration of the disease and the clinical story would fit in perfectly.

I presume the operation was resection of the ulcerated cavity or diverticulum.

PRE-OPERATIVE DIAGNOSIS

Carcinoma of the stomach.

OPERATION

Paramedian incision to the left of the median line. The spinal anesthesia was unsatisfactory and it was necessary to supplement it with ether. On exploration the stomach showed no evidence of carcinoma or ulcer. The pylorus was unusually large, with very little musculature. At the cardiac end near the esophageal opening there was a small pouch. Both the greater and lesser omentum were extremely fatty, so that exploration was extremely difficult. There was no induration or tumor anywhere palpable. The liver was about half normal size. It was smooth in contour and normal in color. It showed no signs externally of disease. The left lobe was almost entirely missing, so that the dome of the diaphragm could be plainly seen with the central tendon. The spleen lay in close contact with the esophageal end of the stomach. The gall bladder was negative. Palpation of the entire length of the large intestine was negative except that there were hard fecal masses in the sigmoid. The small pouch at the cardiac end of the stomach did not seem to correspond accurately with the x-ray picture, as it was about the size of the last joint of the thumb and had a good sized opening into the stomach. There seemed no indication to open into the lumen of the stomach. The wound was closed without drainage.

FURTHER DISCUSSION

He did have a diverticulum in the stomach. I think that is the reason for his bleeding. The variation from the x-ray picutres I think is very interesting. In the first place the difference in size between the x-ray and what they found. In the second place he may have had some ulceration. The actual lumen connected with that diverticulum was very small at times and may have been very small when he was x-rayed.

There is only one other possibility, that is the man may have a diverticulum which completely misled the surgeons. That is, he may have had cirrhosis of the liver with esophageal varices to account for the hemorrhage, and the diverticulum may have been put in to make it hard. It is usually true that diverticulum does not cause symptoms. The finding of a diverticulum is usually an x-ray finding. But I am not sure that in individual cases it can not cause symptoms. A pocket like this might well cause the symptoms of which he complained. I am under the impression that gastric diverticula bleed more frequently than those found in the large bowel. In this case we may have to make two diagnoses. I should say he certainly has diverticulitis of the stomach. He may have cirrhosis of the liver with esophageal varices.

DR. CHESTER M. JONES' DIAGNOSIS

Diverticulitis of the stomach.

Possibly cirrhosis of the liver with esophageal varices.

Discussion on Autopsy by Dr. Tracy B. Mallory, Boston

There were two important findings, one of which was correctly diagnosed as a diverticulum of the stomach. This, I believe, however, was not the cause of the symptoms, but a large penetrating ulcer on the posterior surface of the duodenum, diving into the head of the pancreas. It was entirely on the posterior surface. Even at autopsy, palpatin the duodenum from the outside I was unable to feel the ulcer. I did not find it until I actually opened up the duodenum.

So far as the surgeon's note on the size of the liver is concerned, certainly thirty per cent of surgeons' notes on the condition of the liver at operation are entirely wrong according to post mortem examination. I very seldom trust them. It was a perfectly normal liver weighing 1700 grams. I do not think the surgeon was to be blamed in not feeling that ulcer in the duodenum, because it was on the posterior surface, practically buried in the head of the pancreas. There were a great many old adhesions, one of which ran from the transverse colon down into the inguinal ring. Another ran from the apex of the diverticulum to the lower pole of tht spleen. So that it is probable that this is a so-called traction diverticulum.

His heart was hypertrophied, 420 grams, slightly above normal. He had a moderate degree of arteriosclerosis and some scars in his aorta that were suggestive of syphilis. He had a hypostatic pneumonia and a local peritonitis just beneath the operative wound.

The kidneys were practically normal. They showed a relatively slight degree of arteriosclerosis.

There is one statement of Dr. Jones' that I disagree with, in reference to leiomyosarcoma. In a number of cases on record, which I have been looking up recently, diverticula were simulated by deep ulceration of an external myomatous tumor of the stomach.

ANATOMIC DIAGNOSES

1. Primary disease.

Duodenal ulcer.

2. Secondary or terminal lesions.

Diverticulum of the stomach.

Broncho-pneumonia.

Hypertrophy of the heart.

Arteriosclerosis.

DR. JONES: A surprising thing in this case is I think the fact that this man had such unusual pain, and that it was not referred to his back. When there is a duodenal ulcer, perforated, adherent in the region of the back, there almost always is pain in the back. This pain was epigastric, if anything higher up. It is strange he did not have more striking pain of penetrating ulcer. One thing we are sure of in the hospital is that a penetrating posterior duodenal ulcer is a difficult one to diagnose. The diagnosis usually is made because of the patient's symptoms in the face of the negative x-rays. We have had several cases lately in which the x-ray was negative or only suggestive of irritation in the duodenum, yet the patient's pain was out of proportion to the findings. There may be no tenderness on examination even with ulcer that is penetrating, or going on to perforation. It is surprising how little one can find in this type of ulcer.

SITUATIONS WANTED

WANTED—Salaried appointments for Class A Physicians in all branches of the Medical Profession. Let us put you in touch with the best man for your opening. Our nation-wide connections enable us to give superior service. Aznoes National Physicians' Exchange, 30 North Michigan, Chicago. Established 1896. Member The Chicago Association of Commerce.

Eye, Ear, Nose and Throat man in active practice and good standing, experienced and accomplished, desires location or association in New Mexico or Texas for the benefit of a warmer climate. Add. Box W, Southwestern Medicine.

AN HOUR WITH DR. CUREM

This play, written by members of the Woman's Auxiliary of the El Paso County Medical Society, and given to entertain visiting ladies at the meeting of the Medical and Surgical Association of the Southwest, in El Paso, November, 1930, was first presented before a meeting of El Paso clubs as a part of the Auxiliary's program to promote an interest in periodic health examinations. This activity of the Auxiliary follows a very effective campaign against hayfever in which the citizens and government of El Paso were stimulated to destroy all weeds within the city.

DRAMATIS PERSONAE

Miss Sweet, nurse.
Mrs. Ivan Ailment, hypochondriac.
Mrs. Sylly, operative case.
Mrs. Ima Wheeze, hay-fever patient.
Mrs. Fitz, epileptic.
Aunt Mandy, the colored nurse.
Marjorie Ann, the model child.
Mrs. Eat Moore, patient who diets.
Mrs. B. Swift, society woman.

Scene: Dr. Curem's office, with nurse seated at Enter Mrs. Ivan Ailment.

Nurse. Name, please?
Mrs. A. Mrs. Ivan Ailment.
Nurse. Age?
Mrs. A. Do I have to tell that?
Nurse. Yes.
Mrs. A. Well—27.
Nurse. (*looks*) 27 Weight, please?
Mrs. A. Do I have to tell that, too?
Nurse. Yes.
Mrs. A. Well—120.
Nurse. (*looks*)' 120? Are your parents living?
Mrs. A. No.
Nurse. What caused your mother's death?
Mrs. A. I did—at birth. (*sobs*)
Nurse. What caused your father's death?
Mrs. A. Do I have to tell that?
Nurse. Well, we'd like to know.
Mrs. A. It wasn't anything catching.
Nurse. Well, what was it?
Mrs. A. He was hung!
Nurse. Have you any children?
Mrs. A. Yes—Ivan. Ivan is thirteen and so advanced for his age. Of course, he is only in the fifth grade, but he has been ill a great deal. And he has the sweetest nature—why, only yesterday, he threw the cat off the roof, and, when his father most unsympathetically reproved him for it, he—
Nurse. (*desperately*) Mrs. Ailment, have you ever had any contagious diseases?
Mrs. A. No, but Ivan had the worst case of scarlet fever ever seen in the city of New York.
Nurse. Have you had your tonsils out?
Mrs. A. Yes, my dear, and I never saw anything like it! I almost died. And they neglected me frightfully. I rang and rang and nobody came, and the doctor had gone to the theater. Imagine anyone going to the theater the same night he's almost killed a woman! Did you ever hear of anything so completely callous? And when they finally came, after almost five minutes, they gave me the silliest excuse. They said a woman had twins in the elevator!
Nurse. Have you had any other operations?
Mrs. A. No, but Ivan had his appendix out in June and I don't think he ought to be back in school but his father is most unsympathetic. I feel I ought to have my appendix out—it may be that that makes me feel so queer just here (*places hand on her side*) but I couldn't find a doctor in New York that realized how I suffered sometimes. None of them would operate; you know, I think they found some condition that won't let them operate and they just won't tell me, and my husband is so unsympathetic, you know how men are, you have to be dead before they think there is anything wrong, and he seems to think that, just because I dance all night and eat three or four good meals a day, I am perfectly strong. Well, here today and gone tomorrow—I wouldn't be surprised if he learned to his sorrow. So I don't know what's the matter with me. That's why I came for a general physical examination, but I am. I want to have my annual physical examina- without an x-ray picture and ten laboratory tests. (*Sits and waits for the doctor.*)

Enter Mrs. Sylly.

Mrs. S. Good morning, Miss Sweet.
Nurse. How are you by now, Mrs. Sylly?
Mrs. S. That's just what I came for—to see how I am. I want t have my annual physical examination to be sure nothing happens to me when I don't know about it. Why, they took me to the hospital on such short notice when I had my operation that I didn't even have time to worry about it.
Nurse. That's fine. Dr. Curem will see you in a few minutes.
Mrs. S. (*Takes chair.*)
(*Off stage*) *Kerehoo! Kerehoo! Enter Mrs. Ima Wheeze.*
Mrs. Wheeze. Good morning, Miss Sweet. Is the doctor in?
Nurse. Good morning, Mrs. Wheeze. The doctor is busy just now. Will you wait?
Mrs. Wheeze. Yes, thank you. I can sneeze as well here as at home.
Nurse. Isn't your hayfever any better since you have been taking the inoculations?
Mrs. Wheeze. Not a bit, but it might have been much worse without them. I react to so many things: dog hair, canary feathers, baked potatoes, even my husband's mustache brings on a violent attack. (*Sits down.*)
Mrs. Ailment. (*to Mrs. Wheeze*) Have you tried calcium?
Mrs. Wheeze. I have tried everything, (sneezes) the latest a solution of acid used to dissolve gold and after a few doses I dropped a bottle of it on the bath room floor and it dissolved the cement between the tiles.
Nurse. Perhaps the weeds near you need cutting. The city government, from the mayor down, are behind the weed eradication campaign.
Mrs. Wheeze. Yes, the weeds do need cutting, but since our mayor is to be a congressman, I'm afraid his head is above the weeds. (*Sneezes.*)
Mrs. Sylly. Have you had a general physical examniation? You may need an operation.
Mrs. Wheeze. Yes, Dr. Curem examined me thoroughly before I began my treatments.
Enter Mrs. Fitz.
Nurse. You wish to see the doctor ?
Mrs. Fitz. I wouldn't come here to see a movie. Is the doctor in now? I just wanted him to look at my finger (*holds up bandaged finger*) *and I don't* need a general examination.
Nurse. Your name, please?
Mrs. Fitz. Mrs. I. T. Fitz—F—I—T—Z.
Nurse. Your address?
Mrs. Fitz. 2400 Pain Ave.
Nurse. Thank you, Mrs. Fitz. Dr. Curem will see you, Mrs. Ivan Ailment.
(*Mrs. Ailment goes into private offiee.*)
Nurse. Do you know Mrs. Sylly, Mrs. Fitz?
Mrs. Sylly. Speaking of operations—when I had my operation I can remember going under the ether just as plainly as if it were today. There were so

many people around—doctors, nurses, relatives—I can't remember when I had so much attention before. It seemed like a public function instead of a private operation. To me, taking ether seemed the most serious step in life. When the doctor playfully said, "Now count with me—one, two, three, four," I felt like telling him a thing or two—that this was no time for play or foolishness—but the next thing I knew, I was sailing miles above everyone—way up in the cluods—saying one—two—three—four—how I wish there were more. I was having the time of my life up there when I suddenly realized I hadn't locked up the house and hadn't told my husband about my date with Hugo Eckner in the Graf Zeppelin. Then I got the sickest feeling.

Mrs. Fitz. How romantic!

Mrs. Sylly. —and when the thought came to me of the great expense of this venture, my head swam, but I consoled myself knowing that I would have a lot to talk about for the rest of my life. Everything went well for awhile at this dizzy height until landing time, when I said. "So this is heaven, no, it can't be, it doesn't smell like heaven, it smells like a hospital." And then I said, "Oh, how my Graf-Zeppelin hurts! It fels so empty! I guess those doctors didn't leave anything inside of me except my acoustics." Wasn't that killing? (*sighs*) *So now* I feel if they did so good a job as I think they must have, I'll never need fear catching anything else except, possibly, halitosis.

Nurse. Dr. Curem its ready for you, Mrs. Sylly. (*Mrs. Sylly goes to Doctor's office.*)

Enter Aunt Mandy and Marjorie Ann

M. A. Good morning, Miss Sweet.

Nurse. Good morning, Marjorie Ann.

M. A. This is my birthday and I have come in for my yearly physical examination.

Nurse. How fine! If all the boys and girls in El Paso would do that, we should have many more strong men and women. Dr. Curem will see you in a few minutes, just sit down.

M. A. Aunt Mandy, you've been promising to tell me how you saved your life with a pair of spectacles, for a week. Tell me while we wait.

Mandy. Law, chile, I dismember about dem spectacles and I done save my life so many times. You don't mean the time de bees and de goat tackled me and driv Marse Crawford unner de kitchen, does you?

M. A. No! No! They took you to the place where all the doctors were.

Mandy. Umm-huh. Now I sorter gins to git what youse drivin' at. If you'd des said "doctors" in de fust place I'd knowed what you meaned.

M. A. You reached out and took the spectacles off the table—don't you remember?

Mandy. Sholy I does! Sholy I does! Dis hyar story of mine dates way back bout muscadine time and it comes of my gittin' a muscadine seed lodge in my vermafuge pendulum. Well de muscadine seed lodge in my pendulum and de first news I gits of it, de misery ketch me unner de bottom rib on my right side and it stuck dere until I most nigh fergits how to woak on my heels. Dere was days when I couldn't no more den git up from me chair and when it come to doin the cookin' or de washin' de misery was des scandulous. Den along come Dr. Bailey one day and he took a look at me, and he press me hyah and he thump me dere and den he allow dat I got a muscadine seed lodge in my vermafuge pendulum. Honey, I was sholy scared! 'Cause Dr. Bailey is a man what knows de name of evahthing on de inside of a woman and he can cut a man's laig off wid his eyes shet and nevah even take de seegah outen his mouf, and when he let out 'bout dat muscadine seed and I knowed I'd been swallerin' em for forty years I most drapped in my tracks. From dat day on, de misery got worser and worser. (*Mrs. Wheeze is taken to the doctor by the nurse*). Den dey took me into town and 'low dey gwine have de seed distracted from whah it done lodge. Dey say dey ain't gwine do nothing 'til dey git me sorter conditioned up. Den one day eveybody is a-walking' round dey tiptoes and a-whisperin' and de air is just nachully heavy wid trouble. I see de doctors in de odder room movin' things yonder; and a-spreadin' a white cloth and a-washin' dey hands in a chiny bowl. So when Lucy Ann come by, I say, "Lucy Ann, is de doctors in de udder room gittin' mah dinner ready? Seems lak to me I hyah de clink of dishes and Dr. Muckhat got a carvin' knife in his hand." "Dinah," says she, "deys gittin ready to perform on a sick woman." "Lucy Ann," says I, "is dey any body sick here but me?" "N obody but you," 'spons she. So den I knowed if dere wasnt anybody sick here but me dat all dat gittin' ready was for me. So I sit in de bed and recah ovah and grab my spectacles off the table and clap 'em on. And just then the doctor is opening a big black box and takin' out long curious knives,—and saws—and whenches wid twisted handles. And de young doctor say, "Well, dey ain't much chance for the niggah, but guess we better cut her open and see what ails her." Well, chile, I knowed dat wasn't no place foh me. So I slip out of bed and grab my clothes and drap outen dat winder like a wet towel. I hit de groun' a runnin'" and tuk de main road out of town. I look back and see a shadder followin' and I done lead dat shadder plumb home. I didn't know I was dere until I hit my head fo'most 'ginst de back doah. I ain't never been so shuck up in all my bo'n days as when I hit dat back doah, 'cept when I look fru dat doah expectin' to see a layout foh dinnah and see dem performin' instruments.

M. A. But, Aunt Mandy, what became of the muscadine seed?

Mandy. Well, honey, I reckon when I hit dat back doah head fo'most I just natchally must have swallowed it fudder. When a woman gits to de point whah she can't tell de diffunce twixt performin' instruments and a layout for dinnah wid de nakud eye, it's time to tie de spectacles on; and anyhow dat's how de spectacles save my life.

M. A. Why didn't you want them to operate on you, Aunt Mandy?

Mandy. I don't believe in operations. Even de scriptures is agin it. Don' de Bible say plain and flat, what God has jined together let no man put asunder!!

Enter Mrs. Eat Moore.

Nurse. May I have your name, please?

Mrs. E. M. Mrs. Eat Moore.

Nurse. And address?

Mrs. E. M. 100 Ease Street.

Nurse. Your symptoms, please?

Mrs. E. M. I haven't any. I am looking for a doctor who can make me look my thirty years and no more. I haven't had a bit of cake, candy, or anything sweet this entire summer; I have almost lived on tomato juice, bran, sauerkraut, pineapple, lamb chops, spinach, and life savers, and have gained 25 pounds. As a last effort to reduce I am inventing a perambulating bridge table—and here, this morning, as I came through the park a man kept following me everywhere I went. Finally I stopped and said, "'What do you mean following right in my tracks, you tramp? If you don't go away I am going to call a policeman." He said, "Oh, lady, please don't do that, this is the first shady spot I have found for weeks. Please have a heart." I want a perscription to reduce. (*Nurse hands her a fan and indicates a chair.*)

Nurse. I'm sure Dr. Curem can help you; he will see you soon.

(*Nurse takes Mrs. Fitz in to Dr. Curem. Mrs. Fitz drops note.*)

Nurse (*finds note on the floor on her return and reads*: "To anyone who finds this: If I should fall on the street and have to have a doctor, please don t remove my appendix. It has already been taken out twice. This is just an ordinary epileptic fit. I have them all the time." (*Nurse smiles and puts note away.*)

Enter Mrs. Swift.

Mrs. Swift. I'd like to see Dr. Curem.

Nurse. He can see you soon, I am sure. Won't you have a chair?

Mrs. Swift. I had an appointment with the doctor for my annual physical examination and I am sure he is waiting to see me right now, because the appointment was for a half hour ago. I had an examination here last year and I am sure I can't think why I do it again for it led to such a lot of trouble. Why, they discovered I had neuritis and before I got through I had eight teeth out and was taking salicylate three times a day. Of course, it did cure the neuritis, but I'd almost as soon suffer with that as to miss the Annual Woman's Club Luncheon, which I had to do because I couldn't eat. My dear, imagine how I looked! I have two other engagements for this morning and I simply cannot wait. If I am late at the Beauty Shop, Celeste simply will not take me.

Nurse. I will tell the doctor you are here, Mrs. Swift. (*Mrs. Swift impatiently stands as nurse goes to office.*)

Mrs. Eat Moore. If you had started an hour before, you might not have to hurry so fast.

Mrs. Swift. And if I had left later, I might not have had to wait for the doctor now.

Mrs. Eat Moore. Mrs. Ailment, will you tell the nurse I had to go down for an ice cream soda. I'll be right back.

Nurse. (*returns*) Dr. Curem will see you, Marjorie Ann. (*Mandy and child exeunt.*)

Mrs. Swift. Well! No wonder he has such an odd class of patients if he deliberately offends the social leaders. My time can certainly be spent in a more valuable way than waiting for a health examination in a doctor's office. (*Flounces out.*)

Mrs. Ivan Ailment. What a pity that anything should be more important than health.

Nurse. Yes. So many people have time for everything and still fail to give attention to the one thing which you cannot replace—health!

(*Curtain*)

TRUTH ABOUT MEDICINES

PROPAGANDA FOR REFORM

The Stroopal Fraud.—For many years a nostrum known as Stroopal has been sold on both sides of the Atlantic as a cure for Cancer. The product apparently originated in Germany. For some years it was exploited from London and was exposed by London *Truth* nearly twenty years ago. According to Gehe's Codex, Stroopal is composed of the powdered leaves of *Teucrium Scordium*, otherwise known as water germander or wood garlic. For at least seventeen years, Stroopal has been exploited in a small way from Chicago. Recently, Stroopal seems to have been advertised under the name of the Stroopal Company, 2101 Belmont Ave., Chicago. On August 13, the postal authorities issued a fraud order against the Stroopal Company and notified the Chicago postmaster to return all letters addressed to the Stroopal Company to the original senders. (Jour. A.M.A., October 4, 1930, p. 1037).

The Pavia "Cancer Cure." — During the past year, editors of newspapers and magazines have received from one Burroughs F. Perry of 221 Shoreland Arcade, Miami, Florida, a piece of mimeographed publicity material headed, "Cancer and Goiter Cure is Asserted." The statement is to the effect that one Charles Pavia has discovered a wonderful cure for cancer and goiter! Further, according to Mr. Perry's material, the Pavia formula "feeds the cancer germs, satisfies it and destroys it by self-satisfaction.' The main exploiter of Pavia's remedy seems to be one R. B. Fisher, whose stationery announces him to be an attorney; he, too, does business from 221 Shoreland Arcade, Miami. At the request of Pavia and Fisher, Dr. Charles D. Cleghorn, president of the Dade County (Miami, Fla.) Medical Association, checked up on cases treated with Pavia remedy and reported that in three cases examined the treatment had been quite without effect. Dr. Cleghorn reports that the description of the formula, as given him, was "vegetable oils, camphor, menthol and turpentine in a base of animal fats." Chemists of the A. M.A. Chemical Laboraory reported that the remedy was a brownish yellow ointment with a terebinthinate odor, indicating the presence of turpentine, menthol and camphor. It may well be that Mr. Pavia is sincere in his exploitation of the remedy. However, a worthless cancer remedy sincerely exploited may prove just as fatal as the crudest of cancer cure swindles. (Jour. A.M.A., October 11, 1930, p. 1116).

The Advertising of the Dentifrice. — The early part of the twentieth century may be interesting historically for the fact that it witnessed the apothosis of the toothbrush, the toothpaste and the mouthwash. So far as mouthwashes are concerned, their virtues may lie in a slight astringency or alkalinity, in the mildly antiseptic influence they exert for a brief period, or more probably in the fact that they contain enough water to provide a lavage appealing to the organoleptic senses. "Halitosis" gave to Listerine a sales impulse that no other mouthwash has ever been able to equal. The fact that the combination of substances included in Listerine is relatively ineffective and will not cure halitosis did not lessen the sales impulse. Recently, the Food and Drug Administration has cast a critical eye over the claims for antiseptic value made for the various mouthwashes and gargles. It is currently reported that the owners of all these bringers of gold are rushing hither and thither to the laboratories searching for substances that really are antiseptics and that can be added to their concoctions without changing taste or color—the important qualities—that the claims may be justified. Recently, dentifrices have been widely exploited with various claims. A half-dozen assorted chemists and the commissioner of health of New York assert that low surface-tension means that a toothpaste will penetrate better between the teeth. The claim of special value because of low surface-tension in connection with the selling of any toothpaste is one hundred per cent hookum. Any mixture of soap, glycerin and chalk, such as is available in many toothpastes, would be equally endowed with a low surface-tension. The council on dental therapeutics of the American Dental Association is now making efforts to secure restriction of the claims for dentifrices and physicians should do all that they can to aid the American Dental Association in this campaign. (Jour. A.M. A., October 25, 1930, p. 1267).

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PROPOSED BASIC SCIENCE BILL IN ARIZONA

The Arizona State Legislature is considering a Basic Science bill, similar to that which has proved satisfactory in several other states. This bill, prepared by the Committee on Welfare of the Arizona State Medical Association, was introduced in the Senate by Senator T. J. Bouldin, of Navajo County. Before this journal is in the mails this proposed legislation may have been disposed of some way. However, for the information of those interested, the bill is printed below. Whether or not it passes physicians of Arizona are urged to make themselves familiar with this bill. If the legislature should fail to pass this act, it will be on account of lack of education as to its merits. Any educational program in this connection must be conducted by the medical profession and must aim to bring otherwise disinterested legislators to a sense of the importance of protecting the public from unqualified persons, who find the credulity of the average individual with regard to sickness and the treatment of disease a fertile field for exploitation.

The medical profession of Arizona could learn a valuable lesson from the dentists. Many months before the legislature convened they had their proposed bill drawn, copies made and distributed to every dentist in the state, and each of these was asked to interview the elected members of the legislature before they convened. The text of the Basic Science Bill is as follows:

Section 1. BASIC SCIENCE CERTIFICATE REQUIRED. No person shall be eligible for examination or permitted to take an examination for a license to practice the healing art or any branch thereof, or granted any such license, unless he has presented to the licensing board or officer empowered to issue such license, a certificate of ability in anatomy, physiology, chemistry, bacteriology, pathology and hygiene (hereinafter referred to as the basic sciences) issued by the State Board of Examiners in the basic sciences.

Section 2. THE HEALING ART DEFINED. For the purposes of this Act any license authorizing the licentiate to offer or undertake to diagnose, treat, operate on or prescribe for any human pain, injury, disease, deformity or physical or mental condition is a license to practice the healing art.

Section 3. BOARD OF EXAMINERS IN THE BASIC SCIENCES; APPOINTMENT AND PERSONNEL. The Governor shall appoint a State Board of Examiners in the basic sciences (hereinafter referred to respective appointments. On the expiration of the term of any mmeber, the Governor shall fill the vacancy by appointment for a term of five years. On the death, resignation or removal of any member, the Governor shall fill the vacancy by appointment for the unexpired portion of the term. Every member shall serve until his successor is appointed and qualified. The members of the Board shall be composed of persons having special knowledge and education in the basic sciences aforesaid. Any professor in the University of Arizona, or in the State Teachers College at Tempe or Flagstaff, Arizona, who are active teachers in any of the basic sciences, that is, anatomy, physiology, chemistry, bacteriology, pathology and hygiene are eligible for appointments on this board as well as practitioners of any school who are versed in these basic sciences..

Section 4. ORGANIZATION OF BOARD — ELECTION OF OFFICERS, SEAL, RULES, COMPENSATION. The board shall meet and organize as soon as practicable after appointment. It shall have power to elect officers, to adopt a seal, and to make such rules as it deems expedient to carry this act into effect. The Board shall keep a record of its proceedings, which shall be conclusive evidence of all matters contained therein. Each member of the board shall receive twenty dollars per diem and actual expenses, when actively engaged in the discharge of his duties. The compensation

(Continued on page 90)

PUBLIC HEALTH NOTES

J. ROSSLYN EARP,
Director New Mexico Bureau of Health

STATE PUBLIC HEALTH LABORATORY

The State Public Health Laboratory at Albuquerque reports a large volume of work accomplished in the twelve-month period, December 1, 1929, to November 30, 1930, no less than 16,222 specimens having been examined. This service has been most economically conducted at a cost to the state of approximately $7,500. At current prices a private laboratory would have charged $46,248 for the same work. The laboratory has thus saved the State a sum of money in excess of the whole annual appropriation of the bureau of health.

The following table shows in detail the nature of the laboratory work accomplished:

Diphtheria cultures	4,942
Feces (Typhoid)	1,026
Gonorrhea	447
Miscellaneous	741
Rabies	17
Tuberculosis	207
Wassermanns (Syphilis)	2,801
Kahn tests (Syphilis)	2,755
Spinal fluid	42
Water	1,287
Widals (Typhoid)	431
Paratyphoid	853
Undulant fever	153

The laboratory is anxious to receive wet blood specimens for the Widal test. This not only gives a more reliable test for the diagnosis of typhoid fever but enables the laboratory to run at the same time an agglutination test for undulant fever.

UNDULANT FEVER

Investigations of sample herds of goats and of dairy herds have proved that both Br. melitensis and Br. abortus are abundantly present in the animal population of New Mexico. That human infection is equally common must not be concluded. The recent report[1] from the League of Nations on undulant fever comments on the frequency with which milk is found to be contaminated with Br. abortus and the comparative rarity of human infection. It goes on, however, to stress the experiments of Burnet showing that Br. melitensis is decidedly more pathogenic for man than is B. abortus. Moreover, it has been a common experience throughout the world that, when animal infection has been detected and the attention of the medical profession drawn to this fact, human cases have subsequently been discovered in increasing numbers. If the profession in New Mexico will forward to the state laboratory wet blood specimens in every case of suspicious fever, it is possible that the notification of this disease will show an increase.

PELLAGRA

The Santa Fe County Medical Society, at its meeting on January 13, spent some time in swapping stories of cases of pellagra that have recently been treated by its members. Pellagra is one of the preventable diseases. It is entirely within our means, by the adequate use of pellagra preventive foods, to abolish the disease entirely. Yet there were more than 6,500 deaths from pellagra in the United States last year. This must be attributed largely to ignorance and partly to poverty—for an adequate diet is not possible to some of the victims even though they knew of its need.

The richest food in the P-P factor (formerly included in Vitamin B, now sometimes called Vitamin E) is dried yeast. One-half to one ounce taken daily will prevent pellagra or cure it in any but the penultimate stages. There is no reason why yeast should be so expensive as it sometimes is when bought in tablet form from the drug store.

The pellagra preventive foods known at the present time are: fresh lean beef, fresh milk or buttermilk, liver, eggs, and canned salmon. Tomatoes have also been approved. No doubt in the next few years this list will be considerably extended.

(1) Monthly Epidemiological Report of the Health Section of the Secretariat Geneva, October 15, 1931, page 413.

PANORAMIC VIEW OF THE WOMAN'S AUXILIARY TO THE A.M.A. IN FOUR ARTICLES

I. THE EASTERN DISTRICT.

MRS. W. WAYNE BABCOCK

According to the Constitution of the National Auxiliary, the first Vice-President is automatically chairman of organization, the three other Vice-Presidents being organizers for their section of the country. Mrs. Southgate Leigh, of Virginia, therefore, holds this chairmanship, and the Eastern District is her particular responsibility. At her request a series of four articles is being prepared by her committee in order that each district may be cognizant of the progress of its own states, as well as that of the other three sections. The individual state journals have been generous in extreme in the space they have allowed their auxiliaries and this additional courtesy of reporting the auxiliary situation in other states is deeply appreciated, for there is a growing desire to know "what others are doing."

New Hampshire stands alone as the only New England state 100 per cent organized and cooperating with the National Organization. Last year the state auxiliary had misgivings as to its necessity and useful-

ness, but an urgent request from the medical society that the women remain organized, dispelled all doubts. During the year following, Mrs. Hubbard, wife of the State President, visited every county, which encouraged and stimulated the growth of unit auxiliaries.

The New Jersey Auxiliary made pilgrimages to state institutions, set apart one meeting when the mothers of physicians were entertained, and sponsored various health meetings. The Essex County Auxiliary, assisted by the physicians, succeeded in establishing a course of health talks,in cooperation with the Y.M.C.A. of Newark, emphasizing especially prenatal care and information which would aid the mothers of babies and young children. Last year Mrs. James Hunter, Jr., New Jersey's State President, visited every county. as did Mrs. Walter Jackson Freeman in Pennsylvania, during her presidency. One cannot help drawing the conclusion that personal contacts are necessary for county development and success.

Virginia is active in spots. The doctors encourage the auxiliaries as they believe that through them education with regard to the menace of state medicine can be spread.

Ohio for several years has been sending representatives from a few organized counties to the national meetings, but as yet there is no state organization. As our friend and advisor, Dr. Upham, lives in Ohio, it is felt that he will advise the National Auxiliary when the auspicious time arrives for the establishment of a State Auxiliary.

The District of Columbia seems so completely diverted with Washington affairs that the auxiliary which so capably cared for the A.M.A. meetings some years back, seems to have gone into retirement.

Delaware, in a breathless, better-late-than-never manner, has completely caught up and is most interested and active and has entered upon serious work by assisting the men of the profession in establishnig a medical library in Wilmington. They will cooperate with Philadelphia at the time of the A.M.A. and the eastern section will introduce them with pride to the national organization. West Virginia is up and doing and you may expect still better things from that state this year.

Maine, Massachusetts, Rhode Island, Vermont and Maryland have reported the interest of individuals but no organized effort. Queries from different localities in New York as to why there is no auxiliary, have been answered with the statement that several years ago the House of Delegates voted unanimously in favor of the auxiliary and authorized its organization. The same year, Connecticut voted favorably but no definite steps have been taken.

Pennsylvania has surely discovered the rhythm in which its auxiliary work is best done, for concrete accomplishments have been turned out regularly, year by year. Of the three thousand dollars contributed last year to the Medical Benevolence Fund. more than two-thirds was contributed by the Auxiliary. A definite trend toward educational meetings is felt all over the state and socially it is hoped that the carefully formed Philadelphia plans for the next meeting will bring honor and glory to the Keystone State. Not only are the adult members of the auxiliary meeting but a group of the most charming and good-looking daughters of doctors are working together in order that they may know each other and work in unison for the comfort and pleasure of the A.M.A. guests when they come to Philadelphia in May. Verily, who can question the wisdom of the auxiliary, when it brings about so much willing work in behalf of the medical men of the country?

PROPOSED BASIC SCIENCE BILL IN ARIZONA

(Continued from page 88)

of the members and other expenses of the board shall be paid out of the fees received from applicants, but this is not to be construed as preventing appropriations to cover deficits. The treasurer of the board shall give such bond, running in favor of the state, as the state treasurer shall determine. The office of the board shall be in the state capitol building or any other building occupied by the state government.

Section 5. FEES PAYABLE BY APPLICANTS. The fee for examination by the board shall be ten dollars. The fee for re-examination within any twelve month period as hereinafter provided shall be five dollars, but the fee for re-examination after the expiration of twelve months shall be the same as the original fee. The fee for the issue of a certificate by authority of reciprocity on the basis of qualifications as determined by the proper agency of some other state, shall be ten dollars. All fees shall be paid to the board by the applicant at the time of filing application. The board shall pay all money received as fees into the state treasury, to be placed in a special fund to the credit of the board. The treasurer shall pay out of such fund or any appropriation made therefor all expenses incurred by the board, on vouchers signed by the president and secretary of the board.

Section 6. EXAMINATIONS. The board shall conduct examinations at such times and places as it deems best, but such examinations shall be held at least once a year. Every applicant except as hereinafter provided, shall be examined to determine his knowledge, ability and skill in the basic sciences. The examination shall be conducted in

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writing, but may be supplemented by an oral examination in the laboratories. If the applicant received a credit of seventy-five per cent or more in each of the basic sciences, he shall be considered as having passed the examination. If the applicant received less than seventy-five per cent in one subject, and receives seventy-five per cent or more in each of the remaining subjects, he shall be allowed a re-examination at the examination next ensuing on application and the payment of the prescribed fee; but he shall be required to be re-examined in all branches. If the applicant shall receive less than seventy-five per cent in more than one subject, he shall not be re-examined within the period of one year next following his original examination, nor unless he presents proof satisfactory to the board of additional study in the basic sciences sufficient to justify re-examination.

Section 7. REQUIREMENTS FOR CERTIFICATE. No certificate shall be issued by the State Board of Examiners in the basic sciences unless the person applying for a certificate submits evidence satisfactory to the board: (1) That he is not less than twenty-one years of age; (2) that he is a person of good moral character; (3) that he was graduated by an accredited high school or school of similar grade, or possessed of educational qualifications equivalent to those required for graduation by such accredited high school before he began the study of the healing arts, and (4) that he has a comprehensive knowledge of the basic sciences as shown by passing the examination given by the board as by this Act required.

Section 8. RECIPROCITY. The State Board of Examiners in the basic sciences may in its discretion waive the examination required by Section 7, when proof satisfactory to the board is submitted, showing that the applicant has passed the examination in the basic sciences before a board of examiners in the basic sciences or a board authorized to issue licenses to practice the healing are in another state, when the requirements of that state are, in the opinion of the board, not less than those provided by this Act. The provisions of this section shall apply only to examinations conducted by the boards or officers of states that grant like exemption from examination in the basic sciences to persons granted certificates by the board of this state.

Section 9. APPEAL FROM BOARD'S DECISION. Any applicant who has been denied examination by the board may within thirty days after such denial appeal to the Superior Court of Maricopa County; and such court shall on such appeal inquire into the cause of such denial. If in the opinion of the court admission to examination was refused without just cause, the court may order the board to examine the applicant. Notice of an appeal from the denial of the board of the right to examination must be in writing and be served on any member of the board by leaving with him at his usual place of business or abode a copy thereof within thirty days after said board has notified the applicant of its refusal to examine him. Hearings of such appeals shall proceed in accordance with the law and under such rules as the said Superior Court may determine.

Section 10. CERTIFICATES AND LICENSES VOID. Any basic sciences certificate and any license to practice the healing art or any branch thereof, which is issued contrary to this act shall be void. Any board or other body which has issued a license to practice a healing art by virtues of a void basic science certificate shall revoke or cancel such license. The procedure for such revocation or cancellation shall be in accordance with the provisions of the act under which such license was issued, for the cancellation or revocation of licenses generally. The certificate issued to any person by the state board of examiners in the basic sciences shall be automatically revoked by the revocation of any license issued to such persons to practice the healing art or any branch thereof.

Section 11. PRACTICE WITHOUT BASIC SCIENCE CERTIFICATE. Any person who shall practice the healing art, or any branch thereof, in the state of Arizona without having obtained a valid certificate from the state board of examiners in the basic sciences, except as otherwise authorized by this Act, shall be guilty of a misdemeanor and punishable by a fine of not less than fifty dollars ($50.00) nor more than five hundred dollars ($500.00), or imprisonment in the county jail for not less than thirty days or more than six months, or by both such fine and imprisonment.

Section 12. PENALTY FOR OBTAINING OR ATTEMPTING TO OBTAIN FRAUDULENT CERTIFICATE. Any eprson who shall obtain, or attempt to obtain a basic science certificate by any dishonest or fraudulent means, or who shall forge, counterfeit or fraudulently alter any such certificate shall be guilty of a misdemeanor and punishable by fine of not less than one hundred dollars ($100.00) nor more than one thousand dollars ($1000.00,) or imprisonment in the county jail for not less than three months nor more than six months, or by both such fine and imprisonment.

Section 13. PENALTY FOR OBTAINING OR

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Superintendent

ATTEMPTING TO OBTAIN LICENSE TO PRACTICE THE HEALING ART.. Any person who shall obtain, or attempt to obtain, a license to practice the healing art, or any branch thereof, from any board authorized to issue any such license without presenting to said licensing board a valid certificate issued by the State Board of Examiners in the basic sciences as required by this act shall be guilty of a misdemeanor and punishable by a fine of not less than one hundred dollars ($100.00) nor more than one thousand dollars ($1000.00) or imprisonment in the county jail for not less than thirty days nor more than six months, or by both such fine and such imprisonment.

Section 14. PENALTY FOR ISSUANCE OF FRAUDULENT LICENSE. Any person who knowingly issues, or participates in the issuance of a license to practice the healing art, or any branch thereof, to any person who has not presented to the licensing board a valid certificate from the State Board of Examiners in the basic sciences, or to any person who has presented to such licensing board any such certificate or certificates obtained by dishonesty or fraud, or any forged or counterfeit certificate shall be guilty of a felony, and punishable by fine of not less than five hundred dollars ($500.00) or more than five thousand dollars ($5,000.00), or by imprisonment in the state prison for not less than one year nor more than five years, or by both such fine and such imprisonment.

Section 15. FEES PAID UNAUTHORIZED PRACTITIONERS RECOVERABLE. Any money paid out by any person as compensation for services rendered in the practice of the healing art or any branch thereof to any person not validly licensed to practice such healing art or branch may be recovered by the person who has paid such money by a suit instituted within two years from the date when such fee or compensation was paid.

Section 16. ENFORCEMENT. The State Board of Examiners in the basic sciences and the various boards authorized to issue licenses to practice the healing art or any branch thereof, shall investigate any reported violation of this act and report to the proper county attorney all the cases that in the judgment of such board warrant prosecution. It shall be the duty of the attorney general of the state to prosecute or supervise the prosecution of violation of this act.

Section 17. EXCEPTIONS. This act shall not be construed as applying to dentists, nurses, midwives, or optometrists, practicing within the limits of their respective callings, nor to other persons licensed to practice the healing art or any branch thereof in this state when this act takes effect; nor to persons specifically permitted by law to practice without licenses, practicing within the limits of the privileges thus granted to them.

Section 18. SAVING CLAUSE. No provision of this act shall be construed as repealing any statutory provision in force at the time of its passage with reference to the requirements governing the issuing of licenses to practice the healing art or any branch thereof; but any board authorized to issue licenses to practice the healing art or any branch thereof, may in its discretion accept certificates issued by the board of examiners in the basic sciences in lieu of examining applicants in such sciences as heretofore.

Section 19. UNCONSTITUTIONALITY OF ONE PART DOES NOT AFFECT ANY OTHER PART. Should any part or parts of this Act be declared to be unconstitutional, such declaration shall not have the effect of invalidating any other part thereof.

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Section 20. SHORT TITLE. This Act may be cited as "Basic Science Act, 1931."

Section 21. Whereas, the purpose and intent of this Act is to assure and make certain a just and humane law in the State of Arizona for the protection of the citizens from the practices of uneducated and incompetent practitioners of the healing art or any branch thereto, and

Whereas, the preservation of the public peace, health and safety makes it necessary that the provisions of this Act shall become operative immediately, an emergency is hereby declared to exist and this Act is, therefore hereby exempt from the operation of the referendum provisions of the state constitution and shall take effect and be in full force and effect from and after its passage and its approval by the Governor."

TRUTH ABOUT MEDICINES

New and Nonofficial Remedies

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Diphtheria Toxoid.—This product (Jour. A.M.A., November 15, 1930, p. 1505) is also marketed in packages of ten immunization treatments containing two 1 cc. vials of diluted diphtheria toxoid for the reaction test and twenty 1 cc. vials of diphtheria toxoid for treatment; in packages of fifteen immunization treatments contaniing one 1 cc. vial of diluted diphtheria toxoid for the reaction test and one 30 cc. vial of diphtheria toxoid for treatment. Lederle Laboratories, Inc., Pearl River, N. Y.

Tetanus Gas Gangrene Antitoxin (Lederle) Refined and Concentrated.—An anaerobic antitoxin (New and Nonofficial Remedies, 1930, p. 343), prepared by immunizing horses with gradually increasing doses of the toxins of B. tetani, B. perfringen, and Vibrion septique. The toxins are individually prepared. The product is marketed in packages of one syringe containing one prophylactic dose, stated to represent tetanus antitoxin, 1,500 units, perfringens antitoxin 1,000 units and Vibrion septique antitoxin 10 units. Lederle Laboratories, Inc., Pearl River, N.Y.

Gas-Gangrene Antitoxin (Polyvalent) Refined and Concentrated. Without Tetanus Antitoxin. An anaerobic antitoxin New and Nonofficial Remedies, 1930, p. 343) prepared by immunizing horses with subcutaneous injections of gradually increasing doses of the toxins of B. perfringens, Vibrion septique, B. oedematiens, B. sordelli and B. histolyticus. The toxins are individually prepared. The product is marketed in vials containing one minimum therapeutic dose, stated to represent perfringens antitoxin 10,000 units, Vibrion septique antitoxin 100 units, B. oedematiens antitoxin 200 units, B. sordelli antitoxin 200 units, and B. histolyticus antitoxin 25 units. Lederle Laboratories, Inc., Pearl River, N.Y.

PROPAGANDA FOR REFORM

Avesan (H) Not Acceptable for N.N.R.—The Council on Pharmacy and Chemistry reports that Avesan (H), according to the Avesan Chemical Co., Los Angeles, is "Indicated in tuberculosis, asthma, bronchitis and bronchiectasis" and stated to be "Effective in minor disturbances of the respiratory organs." The product is supplied in ampules and is administered subcutaneously. It is stated to be "a purely chemo-therapeutical product" which is "composed of formic acid, sodium nucleinate, camphor, allyl sulphide and chlorophyl with traces of salicin and sulphuric ether." After considering the

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The Robinson Neuro-psychiatric Clinic formerly the G. Wilse Robinson Sanitarium has been in continuous existence for almost forty years—ever since Dr. John Punton founded the Punton Sanitarium. From this experience we feel that individual treatment and institutional care are the only logical approaches to the cure of the mentally afflicted. We will attempt to show by case reports that our results are in keeping with those of the other branches of medicine.

S. came to us with an advanced case of typical tabo-peresis. He was treated with the classical Swift-Ellis, intraspinal, therapy and in three months returned to work symptomatically cured and has remained so for fifteen yeors.

This case illustrates the very good results that can be obtained from intraspinal therapy, in the selected case. Others receive malarial therapy, while other cases receive treatment by means of metalic salts, as indicated.

Our results in the treatment of neuro-syphilis have been uniformly satisfactory, though in a small percentage of cases, the patients are too far advanced to be aided by therapy. We advise early treatment for all forms of neuro-syphilis, as the only hope for these patients.

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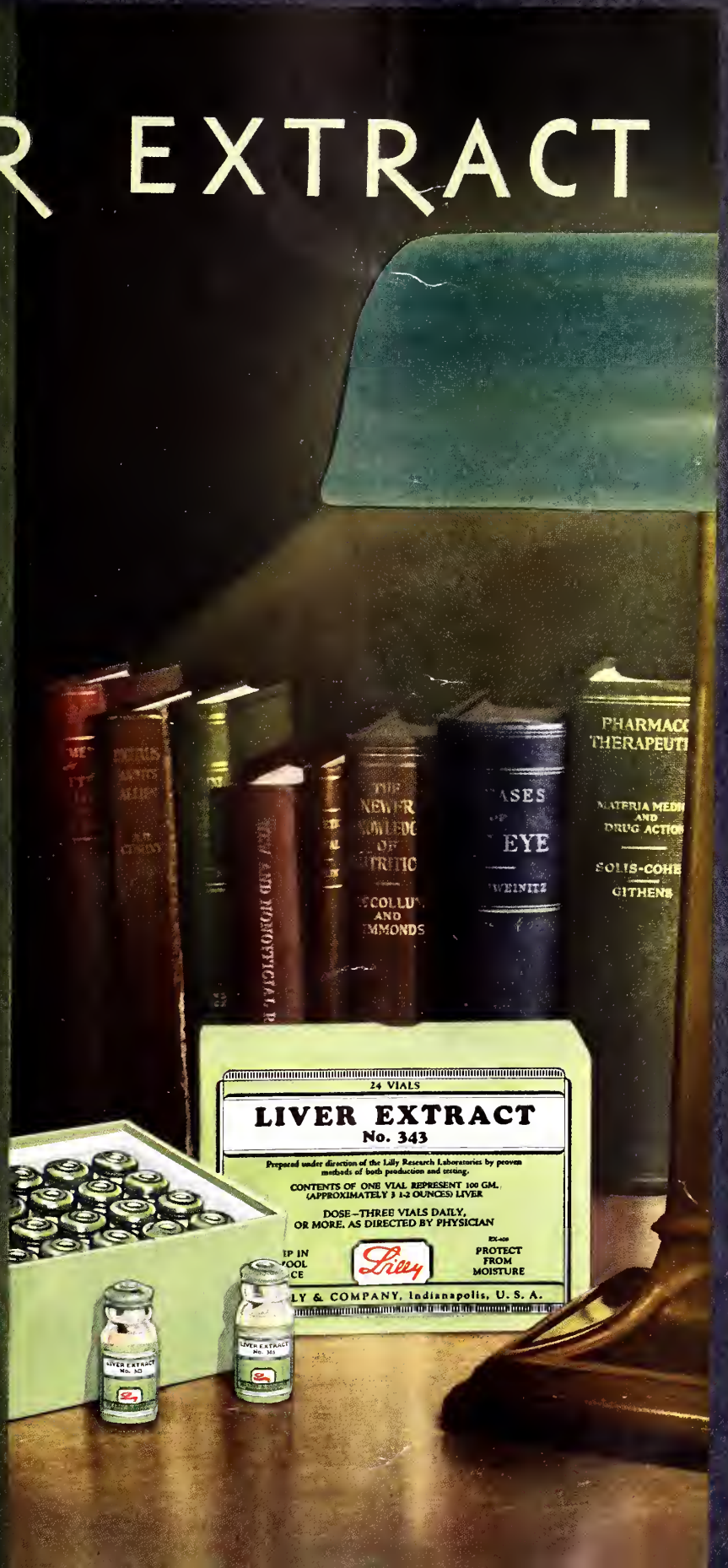

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PROGRESS THROUGH RESEARCH

available evidence and information, the Council declared Avesan (H) inadmissible to New and Nonofficial Remedies because no acceptable evidence for the efficacy and rationality is presented, because unwarranted claims are made, and because no evidence was supplied to show that the composition and uniformity of the preparation are adequately controlled. (Jour. A.M.A., January 3, 1931, p. 39).

Therapeutic Potentialities of "Mustard Gas." — From time to time hopes are still entertained for some possible usefulness in medicine of "mustard gas," chemically known as dichlorethylsulphide. British and German investigators report that the dermal application of dichlorethylsulphide will prevent the development of the experimental cancer of tars. Forster of the Pharmacologic Institute at Wurzberg has reported that dichlorethylsulphide in high solution was the most efficient hair growth promoter of a considerable number of agents tried. Quantitative estimations of hair growth on shaved cats, treated locally with concentrations of 0.01 per cent of the compound in fifty per cent alcohol containing 2 per cent of glycerin, showed a much greater production of hair than with other substances used. Impure yellow petrolatum, but not the pure white product, was next in efficiency to dichlorethylsulphide, this being attributed to impurities acting as irritants. Forster found that when agents are used that cause excoriation a diminution or inhibition of hair growth occurs, and he suggests that this may also occur after injudicious application of dichlorethylsulphide. Lest the results of this research on hair tonics in felines arouse premature hopes in the bald and near bald, it should be mentioned that not all shaved and bald skins responded equally well. Nor are all "war gases" necessarily effective, for the German cats, in Forster's hand, frankly declined to respond to the much vaunted "war gas" of the Allies. (Jour. A.M.A., January 3, 1931, p. 41).

First Aid by the Manufacturer.—Doctors received during the Christmas season, a copy of the pamphlet entitled "First Aid and Emergencies," prepared by McKesson and Robbins for circulation to the public. It is not surprising to find from consultation of this pamphlet that first aid covers a wide variety of conditions and that apparently McKesson and Robbins have developed something for each of these conditions. Thus, anemia is listed among the conditions demanding first aid and the patient is given full instructions for its control. In addition, biliousness and liver trouble, Bright's

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disease, diabetes, eczema, gout, rheumatism and tuberculosis are among the conditions demanding first aid. True, the book mentions in various places the desirability of calling a physician, but the patient is encouraged to take a chance. This pamphlet represents one of the worst phases of proprietary medicine business. (Jour. A.M.A., January 3, 1931, p. 44.)

VITAMIN ADVERTISING AND THE MEAD JOHNSON POLICY

The present spectacle of vitamin and irradiation advertising running riot in newspapers and magazines and via radio emphasizes the importance of the physician as a controlling agent in the use of vitamine products. Mead Johnson & Company feel that vitamin therapy, like infant feeding, should be in the hands of the medical profession, and consequently refrain from exploiting vitamins to the public.

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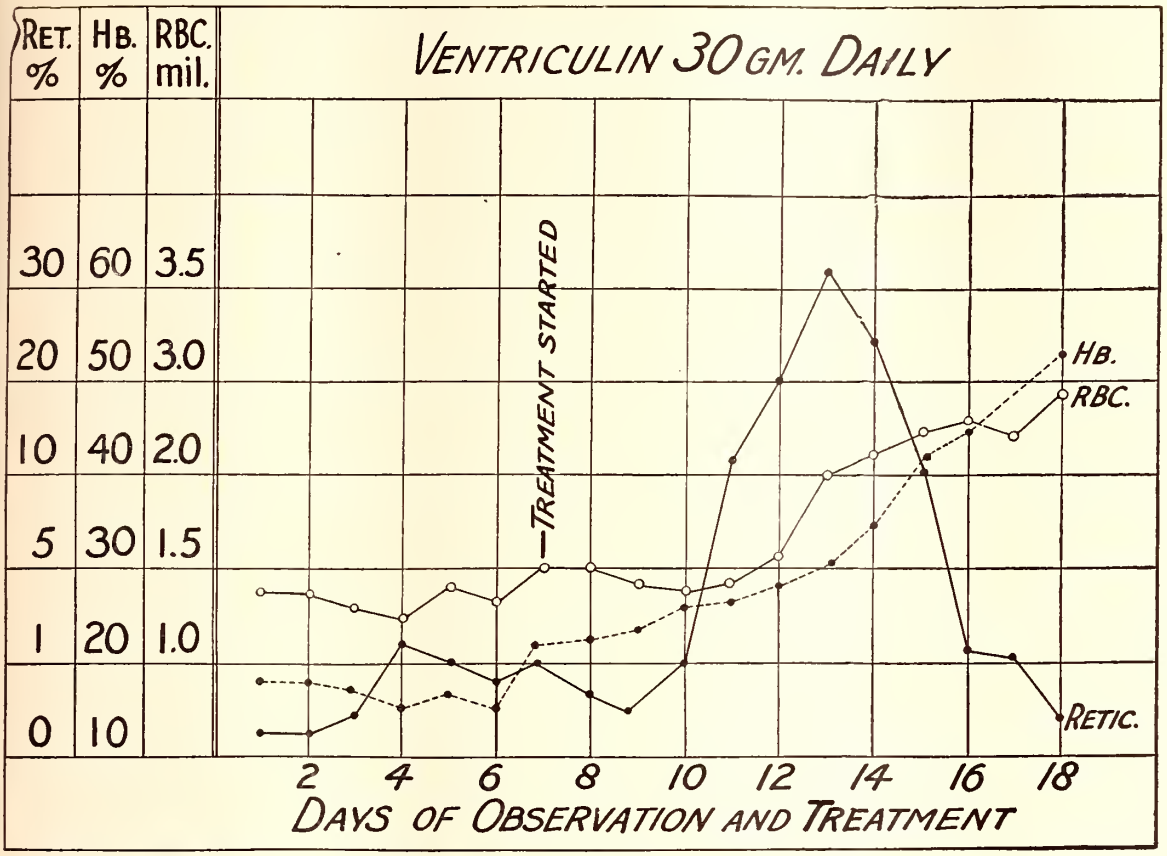

VENTRICULIN ~ Specific in Pernicious Anemia

(Desiccated, Defatted Hog Stomach)

Accepted for N. N. R. by the Council on Pharmacy and Chemistry of the American Medical Association.

Summary of findings in typical case of pernicious anemia treated with Ventriculin and illustrated in above chart.

DIAGNOSIS. Pernicious anemia.

INITIAL BLOOD COUNT: Red blood cells 1.5 million per cu. mm.; Hemoglobin (Newcomer) 21 per cent; Reticulocytes 1.0 per cent.

TREATMENT. Ventriculin 30 Gm. daily.

PHASE OF REMISSION. *On sixth day of treatment:* RBC 2.0 million; Hemoglobin (Newcomer) 30 per cent; Reticulocytes 32.0 per cent (calculated rise for 1.5 million red blood cells at beginning of treatment = 22.3 per cent, exceeding expected rise by 9.7 per cent).

PROGRESS REPORT. On the twelfth day after Ventriculin was begun the following blood count was recorded: RBC 2.9 million; Hemoglobin 52 per cent; Reticulocytes 0.4 per cent. (Expected weekly increase = 500,000 red blood cells per cu. mm. Actual increase in this patient = 700,000 red blood cells per cu. mm.).

A Booklet on Pernicious Anemia will be sent you promptly on request.

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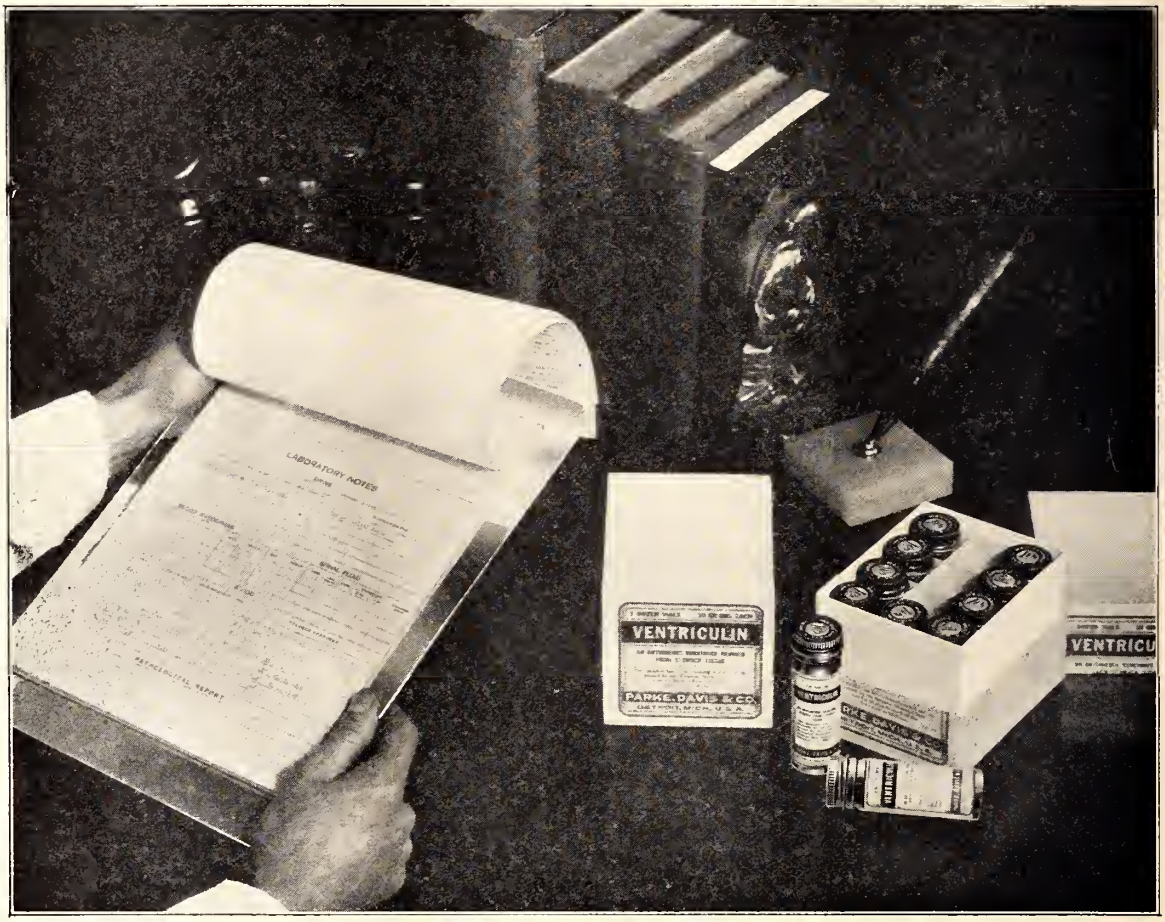

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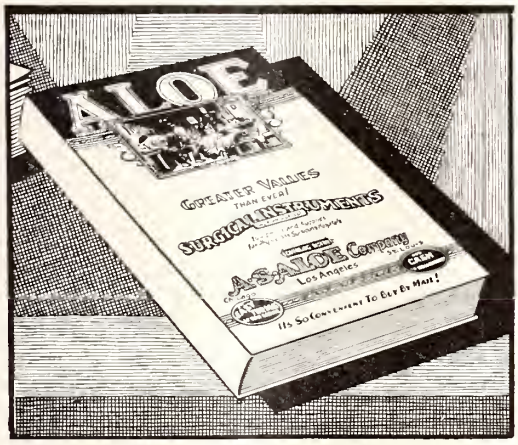

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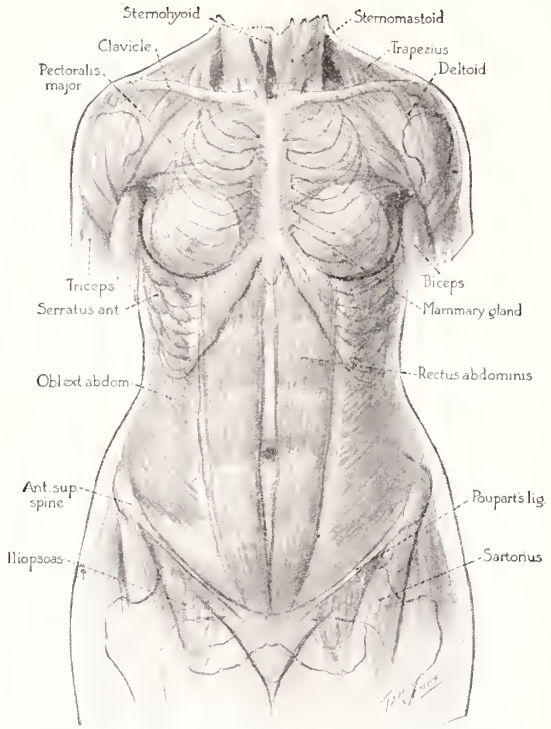

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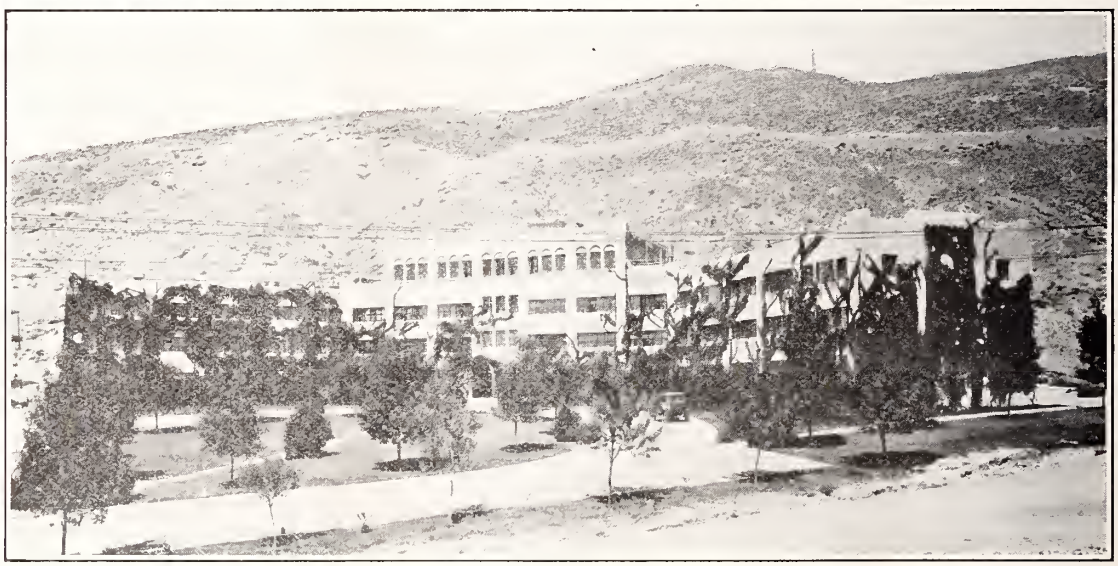

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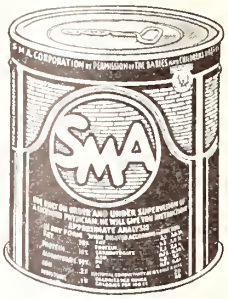

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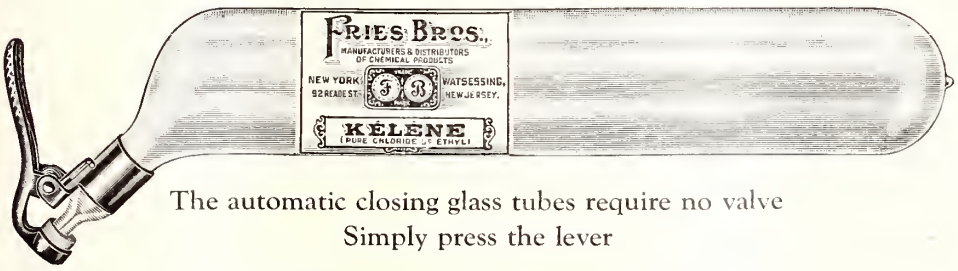

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URETERAL CALCULI WITH REPORT OF THREE CASES

CHARLES N. PLOUSSARD, M. D.
Phoenix, Arizona

Are ureteral calculi primary or secondary? In the large majority of cases, probably between 90 and 95 per cent are secondary, having formed in the kidney, descended the ureter, and lodged at certain levels as governed by size and shape of calculus, size of lumen of ureter, curves of ureter and relation of ureter to iliac vessels. The most common sites of impaction are: first, just below ureteral pelvic junction; second, where ureter curves around iliac vessels; third, in juxta-vesical portion of ureter; fourth, just proximal to vesical orifice.

It is true that in a few cases the stone forms in the ureter at a location in which there was a narrow lumen with infarction of the urinary tract. This fact is somewhat substantiated by the recurrence of calculi at certain levels without demonstrable calculi in the kidney. Stones after impaction can and usually do increase in size.

Are ureteral calculi single or multiple? In the majority of cases ureteral calculi are single. Authorities note as high as 90 to 96 per cent single. Many combinations have been found, for example: in kidney and ureter on same side; in kidney of one side and ureter on other side (Fig. 10); in both kidneys and both ureters; in both kidneys and one ureter and in both kidneys, both ureters and bladder. This shows how important it is to determine the multiplicity of calculi as well as renal function before operative procedure for removal of any one calculus is undertaken.

Stones in the ureter are found in young and old, male and female. They are more common in the male than female, two to one, and between the ages of thirty and fifty. Ureteral calculi, both descending and impacted, cause both local and general effect. A ureteral stone that consumes no great amount of time in passing from kidney to bladder causes very permanent tissue damage. The resulting edema, of both kidney and ureter, soon disappears after stone has passed into the bladder. If a stone, however, is impacted with complete or partial obstruction to the outflow of urine, a different situation is encountered. There is very seldom complete obstruction. The effect of an impacted calculus on the ureter is quite constant. There is undoubtedly a ureteritis at the point of impaction which often involves all the layers of the ureter and occasionally extends through the wall, causing adhesions to adjacent structures. In long-standing impaction the proximal wall of ureter, as well as pelvis of kidney, is dilated and thinned, causing a definite hydronephrosis and hydroureter. Various clinical signs and symptoms are seen. We may have an obstructive anuria in the side in which the ureter is blocked. We may also have a reflex inhibition of the secretory activity of the opposite undamaged kidney. Grave symptoms arise whne it may block the only functioning kidney the patient has, as well as interfere with the function of a kidney when the function of the other side is also interfered with by presence of a calculus.

Mild or severe infection usually precedes stone formation and practically always follows soon after in the upper urinary tract when urinary drainage is interefered with by an impacted calculus, resulting in a varying degree of pyelonephritis—perirenal infection and systemic signs of renal infection and failure.

Pain is present in a vast majority of ure-

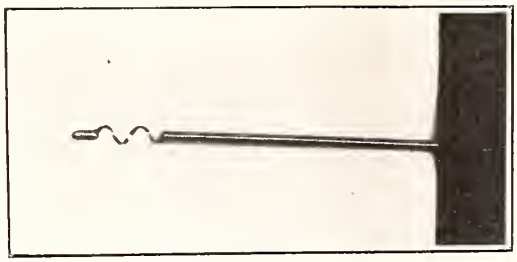


Fig. 1. The Welland Howard spiral stone dislodger. This instrument has a flexible metal shaft size 6, with a spiral tip size 11. This is introduced into the ureter up to the stone, given one turn and withdrawn. Stones not too large will fall into the spiral and are withdrawn with the instrument. This was the method used in removing the stone in Case II. (See Fig. 9).

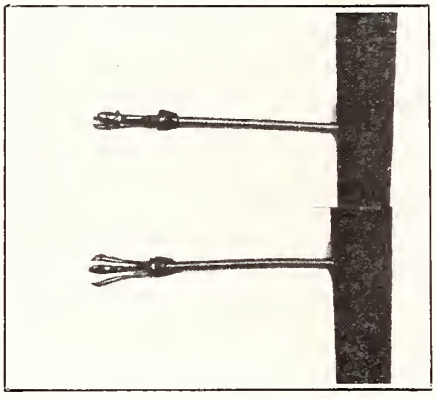


Fig. 2. This is a ureteral stone grasping forceps, with three finger-like jaws which are opened and closed by a sliding collar manipulated from the end of instrument by a wire through the hollow steel flexible shaft. The instrument is passed, while closed (a), up to the location of the stone. It is then opened (b), inserted a short distance further and the jaws closed. Very often large stones may be grasped in its sharp claw-like jaws. It is often used, also, for removal of foreign bodies, stones, etc., from the bladder.

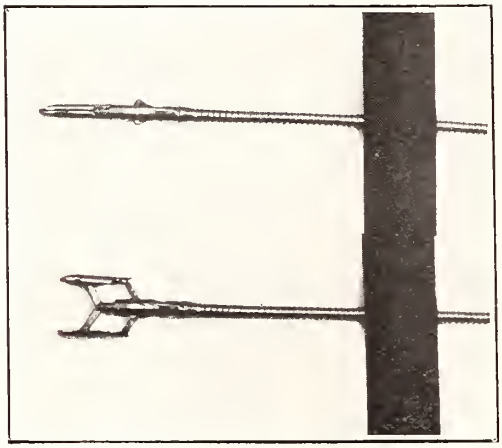


Fig. 3. This is a ureteral dilator with expanding jaws manipulated by a wire through the hollow flexible shaft. It is introduced while closed (a) into the ureter, and by opening the jaws (b) quite forcible dilatation can be done at any point. This instrument was used in Cases I and III, (see also Figs. 7, 8 and 10).

teral calculi, both descending and impacted, varying in degree from severe colicky pain—lasting a few minutes to a few hours, accompanied by nausea, vomiting, abdominal distention, cold clammy perspiration, rapid small pulse—to the recurrent low gnawing pain with occasional fever lasting two or three days, as we often see in impacted calculi associated with varying degree of pyelonephritis. This pain in either case usually radiates down the ureter into the bladder and, in the male, often to the testicles.

There are a few instances in which a ureteral calculus is discovered in which there has been no pain but some bleeding present in urine or during process of other urologic or abdominal investigation.

DIAGNOSIS

The history is a very important step in arriving at a diagnosis. Has the pain which is present in about 98 per cent of the cases been persistent in one location or has it been recurrent? Has an attack of colicky pain, radiating as described before, been present one or more times?—noting severity, frequency and duration.

A differential diagnosis must be made to eliminate the following: inflammatory process in prostate and seminal vesicals, simple uncomplicated ureteritis, simple ureteritis with stricture, mechanical ileus, acute appendicitis, gallstone colic, blood clot from kidney passing down ureter, renal crises of tabes, movable kidney with ureteral kink, chronic pyelonephritis.

A complete physical examination is essential with special reference to gallbladder, appendix, palpation of kidney region and thorough neuroligical examination to eliminate possibility of tabetic condition, complete urine examination, especially looking for blood cells. Supplementing a good history, physical examination, and urine examination, is the all-important urological procedure of systoscopy with ureteral catheterization, plain radiography and uretero-pyelography. Not all stones show in the x-ray. About 25 per cent are composed of uriates and uric acid and are permeable to x-ray.

There are numerous shadows in region of ureter that may be confusing; namely, calcified lymph glands, phleboliths, appendiceal concretions and gallstones. Ureteral catheterization with x-ray catheters plus radiography, affords easiest means of differentiating the above-mentioned as well as determining distance of stone from bladder. A procedure which I find of value, in some cases, as far as diagnosis is concerned, is the use of a wire covered over like a catheter, passed into the ureter. This is fastened

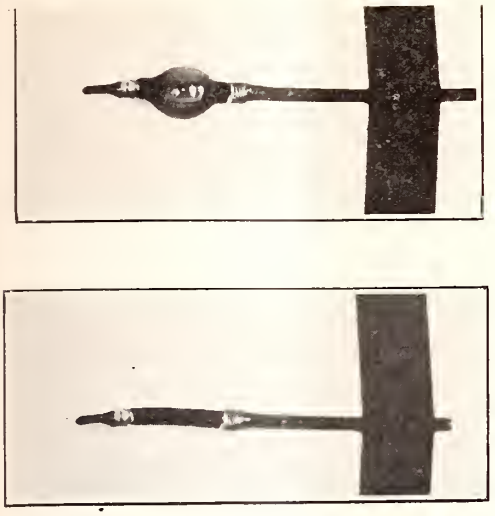


Fig. 4. This is the Dourmashkin ureteral rubber-bag dilating bougie. This is passed into the ureter while collapsed (a), to the point where dilatation is desired, usually just below the stone. Then two c.c. of water are introduced into the dilator causing inflation of the rubber bag (b). This was used in Cases I and III.

Fig. 5. This is the Turner ureteral meatotomy electrode used with high frequency cutting current. The longer tip is introduced into the ureteral orifice, the current turned on and the electrode forced forward with slight pressure. A well-directed incision can be made, without bleeding. Care should be taken to make the incision along the ureteral ridge, as shown in (a) of Figure 6, and not as shown in (b).

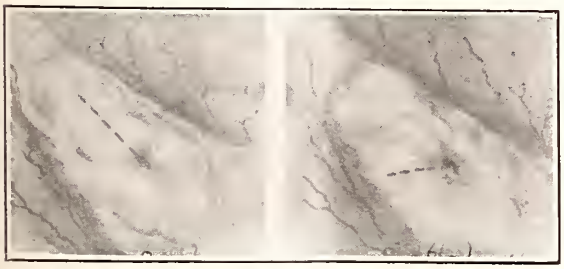


Fig. 6. Cystascopic view of ureteral orifice, showing correct (a) and incorrcet (b) direction of incision to be made with the Turner ureteral meatotomy electrode (Fig. 5).

to a special stethoscope. When the catheter comes in contact with the stone, one can usually hear a definite grating sound.

TREATMENT (REMOVAL)

Much has been done and technic perfected in the past few years that has made about 75 per cent of ureteral stones non-operative. That is, we are able to remove them through cystoscopic procedures.

No attempt at operative removal should be undertaken in presence of severe colic, anuria or renal infection. One can usually succeed in passing a small catheter beyond the obstruction and relief is soon afforded and infection greatly lessened. Occasionally a tightly impacted stone will not allow a catheter or bougie to pass and, if the stone cannot be made to descend by dilatations below, a ureterostomy or nephrostomy should be done. If a stone is impacted and one is unable to dislodge it and is successful in passing a catheter beyond the obstruction, it can be left in the ureter until one is sure of improvement in the general condition of the patient and that the local infection in the kidney is no longer progressive; then operative removal must be undertaken. A special catheter is now made, covered with gold leaf to prevent erosive action of the urine, in cases in which one finds it necessary to leave catheter in ureter over a considerable length of time.

As it is the obstruction, with the resulting back presusre and spasm above the obstruction, that causes the pain in renal colic, a much recommended procedure is immediate catheterization of the ureter with passage of catheter above the obstruction. Relief will be almost instantaneous. This procedure is to be urged when one dose of opiates fails to relieve the pain.

In cases of chronic impacted ureteral calculi, a slower and deliberate procedure at one or many sittings, is often successful. Quite large stones high up in ureter have been "teased" down by dilatation of the ureter by various methods. Local anesthesia is usually all that is required.

As the vesical portion of the ureter and the ureteral orifice is often narrowed, it is necessary to enlarge this opening in the majority of cases. I have been quite successful using the Turner ureteral meatotomy electrode (Fig. 5) with high frequency current for enlarging the ureteral orifice. There is no bleeding and a well-directed incision can be made. For stones lodged higher up, I use the Dourmashkin rubber-diaphragm catheter with the filiform tip. (Fig. 4). This can be inflated with air or water, water being preferable because one can tell just how

large the balloon is inflated after insertion to location of stone. Often the stone drops into the dilated portion below and starts its descent, only to become lodged again at a curve or narrow portion of the ureter below. The expanding ureteral dilating forceps (Fig. 3) is also indispensable in the routine removal of stones. In the three cases to be presented, together with the dilators mentioned above, I used the Howard spiral stone dislodger (Fig. 1). In one case nothing more was necessary than to pass the instrument to point of obstruction, give it one full turn, and then, with alternate slight turns, pull spiral from ureter, and stone was seen to fall from curve of spiral into bladder. To pass numerous catheters or bougies into ureter is often helpful but I have never been given much help with this procedure.

Operative removal is indicated when the operator feels that he is going to be unable to remove the stone. This can usually be determined after two to four attempts. Size of stone, length of time impacted, the pain present and the constitutional effect upon the patient, should guide one as to the length of time to temporize. With grave constitutional symptoms and inability to get beyond obstruction, immediate operation is indicated. If unable to remove stone but successful in passing the catheter beyond the obstruction, one should improve the condition of the kidney and the patient before operative removal of stone is undertaken.

CASE REPORTS

Case I. Patient, adult white female, walks into hospital for urological examination. One year ago patient had an attack of severe pain in right side radiating into bladder, accompanied by nausea, vomiting, considerable shock. The pain lasted nine hours. Two hypodermics of morphine, were needed for relief. The pain disappeared but during the intervening year the patient had attacks once or twice a month, lasting from two hours to four days, requiring morphine for relief. Pains became worse and, during the past three months, urination was frequent and painful, suggesting accompanying cystitis. Patient came to me October 15, 1930. Urine examination shows occasional blood cell, many pus cells. Bladder specimen showed quantitative albumin 0.396 and, with history, I advised cystoscopic investigation. First cystoscopy was done on October 20, 1930. The bladder was inflamed, especially in trigonal area. Left ureteral orifice normal; right, edematous and elongated. Catheter was easily passed into left ureter; catheter was passed about four inches into right ureter and met an obstruction. No size catheter would pass obstruction at this time. Right pyelogram not obtained. Plain film (Fig. 7) shows stone about the size of a date seed in right ureter, just below the sacro-iliac joint.

Operative cystoscopy on same date under local anesthesia. The ureter was dilated, stone forceps introduced about four inches, not successful in grasping stone. The Howard spiral stone dislodger

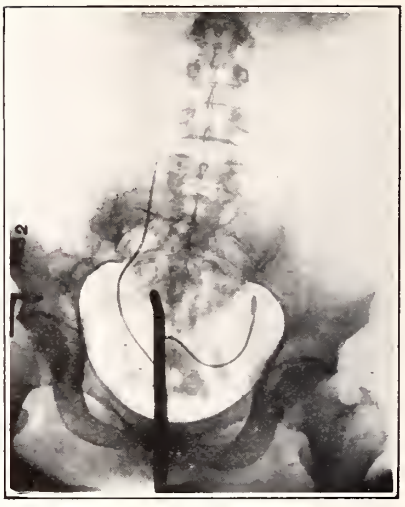


Fig. 7. (Case I.) Roentgenogram showing location of stone when diagnosis was made.

Fig. 8. (Case I.) Roentogram showing stone in vesical portion of ureter with Howard's spiral stone dislodger in contact with stone. The insert shows the actual size in centimeters of the stone after removal. All the instruments illustrated in this article were used at various times in this case.

was introduced same distance into ureter and met obstruction. This was removed. Three catheters were introduced into ureter, two of them passing obstruction. No further procedure at this time.

Second attempt, October 27, 1930. Local anesthesia. Ureteral orifice was dilated and expanding dilator passed three inches into ureter and ureter dilated as instrument was withdrawn. Spiral stone dislodger passed to stone but was unable to pass obstruction. A catheter with wire stylet would not pass obstruction. Obstruction was four inches from orifice.

Third attempt on November 18, 1930. Local anesthesia into bladder and small amount into right ureter. Obstruction met at usual level. Attempt to pass ureteral stone forceps to obstruction failed,

probably because of pockets in the mucosa. The spiral stone dislodger passed up to the stone and considerable traction was necessary when withdrawing instrument. The stone was probably brought down to a lower level. X-ray was taken showing stone about two inches lower in ureter.

Fourth attempt on December 12, 1930. Lower right ureter was dilated with expanding dilator. Stone forceps and spiral stone dislodger could be introduced into ureter about one inch, then met obstruction.

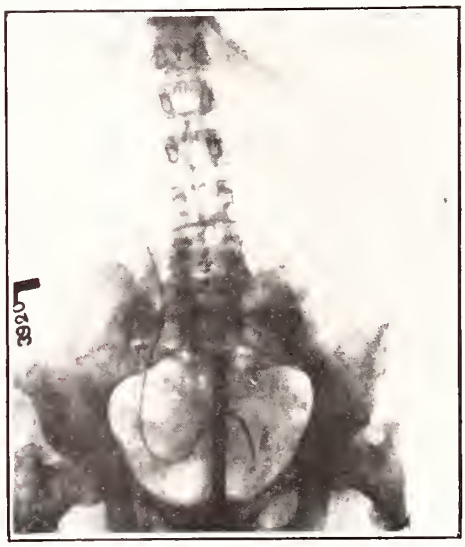
Fifth attempt on December 30, 1930. Dilatation of vessical portion of right uretor. Stone evidently about three-fourths inch from orifice. X-ray taken (Fig. 8) shows relation of spiral stone dislodger to stone in the lower portion of ureter.

Sixth attempt on January 6, 1931. Ureteral orifice was enlarged with the Turner high-frequency meatotomy electrode, the incision extending along ureteral ridge about one-half inch. The spiral stone dislodger was inserted and removed with considerable difficulty, bringing with it some granulation tissue. Patient went home immediately after each cystoscopic. That same day patient sent stone (Fig. 8, insert) to my office and has had no trouble referable to this condition since.

Case II. White female, age 35, history of first attack of pain simulating renal colic in November, 1929. Some dull pain constantly present with attacks of acute colic two or three times a month, requiring morphine for relief. Pain definitely located in left lower quadrant. Considerable tenderness in left kidney region. Kidney not palpable. She was referred to me for cystoscopic examination in January, 1930. At this examination there was present a moderate trigonitis. Both ureters easily catheterized. On the left side, catheter met obstruction about one-half distance to kidney (Fig. 9). Blood appeared through the catheter when this obstruction was encountered. Pyelogram taken. No stone was seen but, because of the bleeding and obstruction and history, I felt sure that a stone was present. The patient returned for further cystoscopic study one week later. At this time the Howard spiral stone dislodger was passed up ureter to the obstruction and given a complete turn and then withdrawn by a rotary motion. When the instrument came from the ureter, a small stone (Insert, Fig. 9), together with a quantity of granulations, was seen in the curve of the spiral. The stone fell into the bladder and was easily removed with stone forceps. Patient has been entirely free from pain since. This is an example of an impacted stone high up in the ureter removed during a single cystoscopic procedure.

Fig. 9. (Case II.) Roentgenogram showing catheter in ureter. Stone was just beyond the end of catheter, but was not visible on the x-ray film. The Howard spiral stone dislodger was the only instrument used in removal of this stone. The insert gives the actual size of the stone.

Case III. Patient, white female, aged 32; gives history of pain in right side for ten years, intermittent in character and ranging from an acute colic lasting a few hours to a dull aching pain lasting several days. Patient is quite anemic and run down. Urine showed pus, blood, casts and albumin. First cystoscopic examination was June 14, 1929. I was not able to pass catheter into right ureter. X-ray



(Fig. 10) shows left renal lithiasis and right multiple ureteral lithiasis. Patient refused further treatment at this time and returned February 14, 1930. Afer two attempts at removal of stones, by using the Turner ureteral meatotomy electrode, with cutting current, to allow introduction of expanding dilator and Dourmashkin rubber-bag dilating bougie, patient was dismissed and asked to report later. Soon after her arrival home, she stated, that, while urinating, she felt a cutting pain at two different times. Each time urine stopped an instant. Patient stated that she looked for stones but failed to find any trace of them. She has been entirely free from pain since. In all probability stones were passed at this time following enlargement of ureteral orifice with the Turner meatotomy electrode and dilatation of the vesical portion of ureter as mentioned above.

DISEASES OF THE CERVIX

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(Read before the Maricopa County Medical Society.)

Diseases of the cervix are very common. One authority states that not less than 85 per cent of parous and 25 per cent of nulliparous women have diseased cervices. And while it is true that many women with diseased cervices are not disturbed by them, it is also a fact that most of the annoyances and suffering caused by pelvic trouble have their origin in pathological cervices. Moreover, even the apparently symptomless cervicitis may act as a focus of infection capable of producing serious trouble elsewhere in the body. And above all let us always keep in mind that a diseased cervix may be the forerunner of cancer of the cervix. Davis is, therefore, of the opinion that no examination of any woman is complete if the cervix has not been investigated. As a thorough understanding of the normal structure and the pathologic changes brought about by disease of an organ is indispensable to a correct diagnosis, a considerable part of this paper is devoted to a review of the anatomy and pathology of the cervix.

ANATOMY

The normal cervix of an adult nullipara comprises the lower third of the uterus. It is cylindrical or spindle-shaped. Above where it fuses with the corpus uteri, there is a constriction corresponding to the internal os. Below, the cervix enters the anterior wall of the vagina in such a manner that the lower surface faces the posterior fornix of the vagina. The vaginal attachment divides the cervix into a supravaginal portion and a vaginal portion, also called a portio. The external os presents a short slit or a small round opening. The anterior lip of the os is shorter and thicker than the posterior lip. On either side of the cervix lie numerous blood vessels embedded in loose fatty tissue. This tissue extends upward between the layers of the broad ligaments and is known as the parametrium. The cervix is rich in lymphatics which communicate with the lymph channels of the uterus. The ligaments of the cervix are the two uterovesical, two broad and two uterosacral. They consist of bands of elastic and muscle fibers which spread out from the cervix in the form of a six-pointed star. Each arm of this star is covered by peritoneum and contains numerous blood vessels and lymphatics. These ligaments, together with the vaginal attachment, fix the cervix in its elevated position and the elasticity of the normal ligaments permits the free mobility of the uterus.

Structurally, the cervix differs from the uterus in several respects. The muscular coat of the cervix contains more elastic and connective tissue than that of the corpus. This gives the cervix greater thickness and strength. The surface of the canal is not smooth but is crossed by the characteristic folds and ridges known as the arbores vitae. The mucosa lining the canal is thicker and denser than the rest of the endometrium. The ciliated columnar epithelia lining the cervical mucosa are larger and dip down into the muscle to form branched racemose glands in addition to the simple tubular glands of the uterus. These racemose glands secrete a clear tenaceous mucus. Just within the external os, the columnar epithelia give way to the stratified squamous epithelia of the vagina which cover the portio, giving it a smooth and shiny appearance. Only the posterior surface of the supravaginal portion is covered by peritoneum. The normal covering of the portio is about twenty cells in thickness. These cells are similar to those of the skin except that those of the portio have very little keratin. The upper layer is made up of flattened dried-up cells which consist mainly of thick walls, no protoplasm and, rarely, compressed nuclei. The next layer is formed of semi-flattened cells with ill-defined nuclei and also without protoplasm. Beneath this are layers of polyhedral cells which make up the bulk of the epithelial structure. These cells possess protoplasm, their nuclei stain well and their walls are thinner. The lowest layer rests directly upon the muscular coat of the cervix and consists of low columnar epithelia, one cell in thickness, whose protoplasm and nuclei stain best. According to Bailey, these low columnar cells, which, by the way, must not be confused with the glandular columnar, are the youngest and most active of the squamous epithelial structure. Their function is the production of new cells to make up for the loss in desquamation or destruction. The new cells when born are columnar or cuboidal in shape. They are then shoved up to the next level and by compression their forms change to polyhedral. This change continues with their ascent, and by the time they reach the surface they have undergone a metamorphosis from the young active columnar to the old and passive stratified squamous cells, whose only usefulness is that of offering a barrier to the entrance of bacteria.

This, briefly, is a description of the normal cervix. Disease produces changes in the structure, function and position of the cer-

vix. The diseases of the cervix that the general practitioner most frequently meets are inflammation and neoplasms. In this paper only the first will be considered, as the treatment of neoplasms, with the exception of a simple polyp, belongs to the specialist.

ETIOLOGY

The normal cervix is free from bacteria. In rare conditions, germs may come down from a ruptured appendix through the tubes and uterus, or bacteria may be carried to the cervix by the blood and lymph streams. Ordinarily, however, the entrance is by way of the vagina. The infection may be introduced directly into the canal through a healthy os by the examining finger, instrument or stem pessary. More often the infectious material is deposited in the vagina during coitus, and the everted lip of a torn cervix is bathed in the diseased secretion. The most important predisposing cause, then, is trauma. The injury in itself may be of minor importance. But as a potential gateway to the entrance of pathogenic microorganisms, every cervical laceration assumes great significance.

The more common bacteria-produced cervical infections are staphylococci, streptococci, bacillus coli and last, but not least, the diplococcus of Neiser. Over 75 per cent of pelvic infections are produced by gonococci. The normal stratified epithelium of the vagina may serve as a barrier to the passage of pathogenic germs and they may then be destroyed by the vaginal secretion and flora. But there is a limit to the capacity of these protective forces. And they will break down sooner or later if infectious prostatic or seminal secretion is repeatedly deposited in the vagina. With the gonococci, other bacteria may be introduced. But long after the accompanying germs have been eliminated, the gonococci may still be found in the cervix. And as is so often the case in gonorrheal prostatitis, the glands of the infected cervix may harbor dormant gonococci for years, only waiting for a chance to come up to the surface whenever conditions favor their emergence from obscurity.

PATHOLOGY

When microorganisms of a kind that can live in an alkaline medium find their way to the cervical mucosa, the result is the familiar phenomenon of acute inflammation. The invader is met by an influx of leukocytes and in the ensuing battle many cells of the invading and defending forces perish. The irritation produced in this process stimulates the mucous glands to greater activity. The increased volume of mucus, mixed with the products of inflammation, ecapes through the external os as leukorrhea. The character, color, odor and amount of the discharge are governed by the kind and virulence of the invader and by the nature of the host's reaction. But any leukorrhea is detrimental to squamous epithelia. Those cells of the portial epithelia which are situated near the os and therefore come in closer contact with the virulent discharge, perish first. The area they have occupied becomes denuded and filled with inflammatory material. This is a true erosion, but it lasts so short a time that it is rarely seen. What is generally spoken of as erosion follows immediately after this first stage of the inflammation.

As soon as an area near the os is denuded of epithelia, it is covered by glandular cells. These columnar cells are more resistant to infection than the squamous. And an infection that may be fatal to the squamous would serve only as an irritant to the columnar. All the glandular cells so irritated are stimulated to produce more mucus. But those cells that are situated just within the external os are also stimulated to proliferate whenever there is a chance for expansion. It is these young cells that leave the canal and occupy the vacant premises on the portio. Once there, these enterprising youngsters proceed to change their new environment to look like the mucosa on the other side of the os. And very soon the portio, which never possessed a single gland, is honeycombed with straight and branched mucous glands. However, despite the enormous amount of work expended on their new homesteads, the columnar cells are always ready to retire and let their weaker neighbors move in again whenever the latter are in a position to stage a come-back. And this really takes place when the inflammation subsides completely. The lower layer of the adjacent healthy squamous epithelia then proliferates, the young cells get under the glandular cells and lift them out of their beds. The succeeding generations of squamous cells continue the good work, lifting and compressing the older cells above them, until the first generation, by now flattened and stratified, reach the surface, and healing is complete. If, however, the host is unable to overcome the infection completely, then the squamous epithelia have no chance to dispossess the columnar squatters. On the contrary, as more leukorrhea is produced, wider areas of the portio are continually desquamated. The expanding abrasions are quickly occupied and reorganized by the glandular cells. This new mucous cover is known as erosion. In reality, this is not an erosion but a proliferation, and Bailey dropped this

old misleading name and christened this process periauricular cervicitis. The opening of the new as well as of the old gland ducts may at times be stopped up by inflammatory products. The resulting cysts are known as nabothian follicles.

As time goes on and the inflammation is not terminated, the infection may spread to the other pelvic organs, either directly through an open internal os during menstruation or labor, or by way of the lymphatics. An infected uterus with the accompanying increase in its size caused by round-cell infiltration and circulatory stasis, results in chronic subinvolution. Lymphangitis of the uterosacral ligaments shortens and hardens them and displaces the uterus. In a similar way, the ovaries and tubes, even the peritoneum, may become involved. And even when none of these changes takes place, the cervical glands may serve as storehouses of infection from which disease may be carried to other and more remote parts of the body. Moench, of the Mayo Clinic, has shown that the streptococci found in cervices of women suffering from arthritis are similar to the streptococci removed from their inflamed joints. The same germs when injected in rabbits produced acute arthritis in the animals.

Sometimes the infection is so virulent that it destroys even the columnar cells. In that case the abrasion on the portio remains exposed. Its base is lower than the healthy squamous surface, the walls are ragged, and the cavity contains unhealthy looking granulations and inflammatory debris. This is indeed a sad picture, but it is by far less dangerous than the low-grade inflammation which results in the so-called erosion. Bailey, who examined histologically 850 cervices that were removed for various causes, found that every case of cancer had an erosion at its origin. He does not claim to know the cause of cancer, but his extensive studies convinced him that an erosion is a constant factor in the formation of the cancer of the cervix. A virulent infection destroys the epithelia and no cancer results. But when the infection is of a low grade, it can only irritate the cells, and irritation stimulates them to greater activity. When these cells possess a function normally, their activity when over-stimulated is also purposeful, as we have seen in the case of the columnar epithelia. But the majority of the squamous cells have no normal function. They are always passive. When, therefore, these polyhedral cells are constantly irritated into activity, what are they to do? They are of no account as fighters against the invader, nor have they anything to secrete. The only thing left for them to do is to reproduce, and this they do with a vengeance. But since this proliferation is abnormal and purposeless, the result of their labor is a cancer. Occasionally, the young glandular cells of the erosion, which are naturally not quite as well-balanced as their sires across the border, will forget their true mission, and when provoked by strong and continued irritation may respond with aimless proliferation and produec an adenocarcinoma. This, however, happens rarely, and the usual cancer of the cervix is an epithelioma. A chronic ulcer of long standing might also reach a certain stage of low-grade infectivity, and exert the same influence on the polyhedral cells as an erosion. The latter, however, is the most constant factor in cervical cancer formation.

SYMPTOMS

Acute endocervicitis has only one symptom, leukorrhea. If the patient complains of pain or burning, it is due to an accompanying vulvitis or vaginitis. The character and the amount of the discharge vary. It may be clear liquid, odorless and scanty, or it may be greenish-yellow, of a nasty odor, and profuse. On examination, the cervix looks and feels larger and edematous. A bright red halo surrounds the external os, and some mucous membrane may protrude from it. The squamous epithelia of the portir and the posterior fornix look red and shiny. The pus contains the causative organism. If a gram-negative diplococcus is found, make sure that it is not the Micrococcus catarrhalis before pronouncing it specific. When in doubt, make a blood culture. The diagnosis of acute endocervicitis is made from the above findings, after excluding disease of the uterus and tubes, and from the history.

The symptoms of the ordinary chronic endocervicitis are not any more definite. There is the discharge, which may be scanty or profuse, mucoid or purulent, odorless or foul-smelling. There may be dyspareunia, slight hemorrhage after coitus, and some form of vulvar dermatitis. In more advanced cases, the leukorrhea may cause much psychic distress. If the uterosacral ligaments are involved, there will be backache and dysmenorrhea. When the lymphangitis reaches the uterus, the ensuing enlargement of that organ will produce a bearing-down sensation with backache and metrorrhagia. When the ovaries and tubes are affected, the symptoms become complicated with those of oophoritis or salypyngitis. On examination, the cervix appears larger and harder, the squamous epithelia are smooth and pink, and the erosion around the os is red, velvety to the touch and bleeds easily. The causative

microorganism may or may not be present in the discharge. The gonococci especially may be lying dormant in the recesses of the racemose glands.

DIFFERENTIAL DIAGNOSIS

A good history and careful general and pelvic examinations are essential. The pelvic examination must be done bimanually and with a speculum under a good light. Insolution. Apply a pledget of cotton soaked tissue from a laceration, a cyst, a fibroid or malignancy. Induration due to a laceration is limited to the scar, while that due to malignancy is more general. If the induration is caused by a cyst, it will disappear after the cyst is emptied. A fibroid should be examined microscopically.

An ulcer may be caused by a badly fitting pessary, a prolapsed uterus, syphilis, chancroid, tuberculosis or cancer. The first two causes are self-evident. Syphilis in any stage should not be difficult to diagnose. When in doubt and the patient's general condition permits, a therapeutic test may help. A chancroid will respond readily to the cautery. Tuberculosis of the cervix is rare, yet it does occur. It may be secondary to tuberculosis of some other part of the body. If it is primary, the germs are carried to the cervix from a tuberculous epididymis during coitus. The history may help here. If still in doubt, the scrapings may be sent to the laboratory.

In the case of a bleeding spot, Crossen advises to test it with a 10 per cent sulphate solution. Appuy a pledget of cotton soaked in the solution to the bleeding area for two minutes. If the bleeding stops, it is not malignant. Repeat this in three days. If there is no improvement, remove a section for examination.

A biopsy is not difficult to do. Use a sharp knife or a punch, and touch up the wound edges with the cautery. But be careful to remove the specimen from the most suspicious area, and include the epithelium. Otherwise, the pathologist may report "chronic cervicitis," and the patient continue to produce a cancer. It is not often, however, that we have to do a biopsy. Usually the case is easily determined, whether it is cancer or benign, without a biopsy. Novak states that the diagnosis could be made without a biopsy in more than 95 per cent of cervical diseases. If the erosion or eversion is pink, smooth, firm, with no areas of induration, friability or vascularity, it is not malignant. If there is an indurated area on either cervical lip, especially if the overlying surface is granular, vegetative or ulcerated, and very vascular; or if an erosion contains a hardened or raised area with vascularity, sponginess or ulceration of the surface, then do a biopsy. If the portio is normal and intracervical mucosa seems vascular or granular, curet the canal and send the scrapings to the laboratory.

TREATMENT

Prophylactic. Taking into consideration that the most common and most troublesome infection of the cervix is caused by the gonococcus, it can readily be seen that the only effective way to protect women from this ravishing infection is by making an honest attempt to eradicate gonorrhea in the male. Any doctor, therefore, who treats gonorrhea in the male in a slip-shod manner is not only acting unprofessionally toward his patient, but he is also guilty of exposing at least one woman to the suffering and dangers of pelvic disease. It is inexcusable for a modern doctor to treat specific urethritis without making frequent microscopic examinations. And it is nothing less than scandalous to dismiss a patient as "cured" without a thorough investigation. While we have no means of determining an absolute cure, we do have certain well-established procedures that can be relied upon in almost every case. Though this is not a treatise on male gonorrhea, it is not out of place to state that before discharging a case of anterior urethritis, a smear obtained from a provocative injection of silver nitrate should be sent to the laboratory for examination. The reason for this precaution is the fact that even doctors are subject t ohuman weaknesses. And in protracted cases, especially when the patient is in a hurry to get married, even an honest man may fail to find the germs though they are still present in Littre's crypts. In posterior urethritis, where a criterion of recovery is so much more difficult to determine, the attending general practitioner should not discharge the patient without a consultation with the best urologist available.

Next in importance is the proper attention to cervical tears. Under the best of obstetrical skill and care, lacerations of the cervix will occur. We are rarely able to prevent them, but are always able to treat them. The best treatment is suturing of the laceration immediately after the placenta is expelled. Whether this is done or not, every woman should be examined six weeks after labor, and treatment instituted, if the cervix is found diseased.

It would of course be a platitude to state that all vaginal examinations and instrumentations should be performed as aseptically as possible. Still, even modern doctors do get careless at times. And even such ultra

modern men as radiologists have infected cervices by using unsterile radium tubes.

Regarding the use of pessaries, gynocologists are no longer in agreement as to the benefits a patient may derive from them. But all agree that a poorly fitting pessary may cause serious damage. It is therefore important that the doctor who uses a pessary should first make certain that it fits the patient and then have her return at stated frequent intervals for examination, to make sure that no damage is caused by the pessary. And because the uterine cavity cannot be inspected, no intrauterine pessary should ever be used. They are still employed by some to help dilate a narrow cervical canal and by others as contraceptives. Dilatation can be done better by sounds or with the galvanic current. And safer and more reliable contraceptives are now available than those barbaric intra-uterine contraptions.

Active Treatment. Acute endocervicitis is seen rarely. When a patient seeks medical aid it is for some troublesome complication. In those rare cases of endocervicitis that are seen without complications, the opinion of gynecologists is divided. Some advise rest in bed until the acute attack is over, and nothing else. Others maintain that the proper treatment consists in getting rid of the germs by going after them with chemicals right into the cervical canal. If an ordinary practitioner may venture an opinion, neither of these extreme views sounds very reasonable. It is not usually practicable to keep a patient in bed when she suffers no discomfort from her disease. And to indulge in intracervical manipulations in the presence of an active infection is certainly dangerous. A more rational method of treatment seems to be the one suggested by Bandler: Clean the vagina and portio. Paint them with 4 per cent mercurochrome solution. Remove, with the aid of a suction-tube, as much inflammatory mateiral from the canal as you can. Paint again the portio with mercurochrome solution. Pour into the vagina an ounce of glycerine. Pack it with gauze strips (two-inch bandage makes a good packing material). Remove the packing in 24 hours and repeat the process until the acute stage is gone. Here you are actually doing something for the patient from which she may derive some benefit. And if, despite your conservative treatment, the uterus or tubes should become involved, you will at least know that it was not your meddling that gave the infection a lift.

The indications for chronic endocervicitis are more definite and the results, as a rule, more satisfactory. Until recently, surgery was the mainstay in obstinate cases. Later radium came into vogue. Now the pendulum is swinging the other way, and a man of the caliber of Dr. Dannereuther, himself a surgeon of note and a teacher of gynecology, states that most gynecological conditions do not require operations. And he goes on to say what we minor lights have suspected all along, that the ability to perform pelvic operations is of minor importance as compared with skilful differential diagnosis and expertness in applying non-operative therapy, and that it is more creditable to the physician, and certainly to the patient's advantage, if symptoms are relieved by office treatment rather than by hysterectomy. As for radium, it has surely demonstrated its life-saving properties in numerous cases of malignant cervices. But that should not blind us to the fact that radium is a dangerous agent. It is not to be employed in chronic cervicitis, especially if the patient is still in need of ovarian hormones, before other methods have been tried.

The ordinary case of chronic cervicitis will respond to some such simple treatment as the following: Clean the vagina and portio. Paint them with mercurochrome solution. Remove the discharge from the cervical canal with the aid of a solution of sodium bicarbonate. Dry the canal and paint it again with mercurochrome solution. Inject a few drops of the same solution into the substance of the portio with a dental hypodermic syringe. Pack the vagina with iodoform gauze. Remove the packing in 48 hours and repeat the treatment for several weeks. (Instead of iodoform gauze, glycerin and gauze may be used as in acute endocervicitis). If there is no improvement within a reasonable length of time, say, two months, or in cases where it is not advisable to have the patient come to the office too often, use the electric cautery. Its contraindications are pregnancy and acute or sub-acute inflammation of any pelvic organ.

The cautery is the treatment of choice in chronic ulcers and in erosions following child-birth injuries. It is a safe and easy method. It can be done in the office and does not require any anesthetic in most patients. The procedure is as follows: After cleansing the vagina and cervix, a small nasal-type electric cautery is applied to the exposed membrane along its whole length, 5 mm. deep and 1 cm. apart. Nabothian cysts, if present, are punctured, their contents evacuated and their bases cauterized. The cervix and vagina are then painted with 10 per cent mercurochrome solution. The

patient is told that during the next ten days the discharge will be more profuse, necessitating her cleansing the external genitalia several times a day. Douches are better avoided, unless the discharge becomes too annoying. In that case, a 1:5000 potassium permanganate douche may be used occasionally. Once a week have the patient come to the office for treatment. Clean out the vagina and cervix and paint them with mercurochrome solution. The cauterization may have to be repeated in two weeks. Healing is usually complete in two months. The leukorrhea is gone and there is a constant improvement in the other symptoms caused by the endocervicitis. But look out for stenosis of the cervix. If it does appear, dilate. When the entire canal is infected, the cauterization will have to be more extensive. Under gas anesthesia, the cervix is dilated and several strokes are made with the cautery along the whole length of the canal up to the internal os. In very obstinate infections the removal of the entire cervical mucous membrane may have to be considered. This can be accomplished by the use of surgical diathermy under local anesthesia. But for this kind of work special training is necessary and some gynecologists still prefer Sturmdorf's operation in those cases.

A word about medical diathermy in gynecology. All agree that it is useful in relieving the discomfort caused by adnexitis, parametritis, and pelvic adhesions. But does medical diathermy cure gonorrheal endocervicitis? Corbus and O'Conor say definitely, yes. Dannereuther and his associates say just as positively, no. So here you have your choice. Nor could I find a more satisfactory answer to the question of what place vaccines sholud be given in the treatment of diseased cervices.

And now let me conclude with an important reminder. Not every case of chronic leukorrhea is in need of local treatment. If the patient is overworked and anemic, painting the cervix with mercurochrome will not stop the discharge. When rest, proper food and Blaud's pills shall have succeeded in building up the patient, the leukorrhea may disappear spontaneously.

BIBLIOGRAPHY

Bailey, K. V.: The Relation Between Cervicitis and Cervical Cancer, Surg. Gynec. & Obst., March and June, 1930.

Bandler, S. W.: Medical Gynecology, Fourth Edition.

Corbus, B. C., and O'Conor, V. J.: J.A.M.A., Nov. 27, 1926.

Crossen, H. S.: Diagnosis and Treatment of Diseases of Women.

Dannereuther, W. T:. Some Useful Office Procedures in Gynecological Therapy, New England Jour. of Medicine, August 21, 1930.

Davis, C. R.: Lesions of the Cervix Uteri, Nelson's Loose-Leaf Surgery.

Novak, E.: The Recognition of Early Cervical Cancer, Surg. Gynec. & Obst., Jan. 1930.

Practical Medicine Series, Obst. and Gynec., 1930.

LAPAROTRACHELOTOMY— ITS ADVANTAGES COMPARED TO THE CLASSIC CESAREAN

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(Presented before the Maricopa County Medical Society, September 29, 1930).

This short paper is presented in the belief that more medical meetings should show on their programs a subject of obstetrical interest. Its theme is one of generalization rather than a maze of detail, and deals with one phase of an issue that has much to do with maternal welfare and safety. There is a great deal in the current literature dealing ably with the subject of laparotrachelotomy. There are definite conclusions to be drawn from this source, besides a few impressions from a still small personal experience and observation.

Granting that delivery of the child by the abdominal route is indicated, and omitting, for the time being, discussion on that point, laparotrachelotomy has several advantages over the classic cesarean. The latter still has the greater vogue, but, according to a recent analysis by Thompson, the perseverance of De Lee, Beck, and others, in their teachings, apparently is bearing results. The incidence of low cervical section, employing De Lee's technic, has increased markedly over the old operation during the past year. It is now quite widely used in the better-known maternity hospitals and clinics on the Continent as well as in the United States.

The technic of the operation was based upon Sellheim's third method, and is accurately described in later editions of De Lee's textbook. Technically, the operation is more difficult, but, according to authority, the necessary skill should be possessed by one professing ability to decide when abdominal section is necessary. Only rarely is the classic section preferred, when urgent haste is required to save the babe, or when dense adhesions are present following previous surgery, especially ventro-fixation. Severe bleeding is rarely encountered with the cervical operation and haste is not necessary. It is well adapted to the use of infiltration anesthesia, to which its enthusaists ascribe much credit for the lessened morbidity and mortality. After the patient has

been in labor for some time, the operation is more easily done, and its safety to a certain limit is not lessened. The test of labor may therefore be employed in borderline cases, and this alone justifies its existence.

Cesarean section has not shown as yet that it is a vital factor in the lowering of our maternal mortality. Besides factors outside of this paper, this fact is due to the high mortality attending the operation even under favorable conditions. The puerperal mortality rate for 1925, in Detroit, from abdominal section was 13 per cent. One series of unfavorable cases showed a death rate of 42.7 per cent. It is true that analysis of these cases shows that poor prenatal care, faulty placing of indications, and similar factors, were much at fault. More recent and more complete statistical studies by Greenhill, Jellet, Kustner, and others, show that there is a mortality with the classic cesarean varying anywhere from 2 to 50 per cent, and that, in those surviving after-complications, the risk is greater with another pregnancy. Very few series show a rate less than 4 per cent for the old operation, and the average is between 10 and 12 per cent. Subsequent rupture of the uterus occurs in 3 to 4 per cent of following pregnancies, 20 per cent occurring before the onset of labor. About three months ago two cases of ruptured uterus following classic section, came under my observation, one at eight and one-fourth months, and the other following several hours of labor, the previous cesarean being unknown to the physician who attended her up to the time of rupture.

The mortality rate from the low cervical section is remaining close to 1 per cent. Greenhill has done over one hundred without a death. A series reported in 1925 from the Chicago Lying-In Hospital showed 330 operations with two deaths, only one of which could be ascribed to the delivery. A recent report of 874 cases shows a mortality of 1.26 per cent. The eleven deaths showed gangrenous appendicitis once, tuberculous meningitis once, pneumonia after ether twice, embolism once, eclampsia twice, sepsis once in a case I remember finding in serious condition and sending in when I was on the service, and peritonitis three times. Resection of tubes for sterilization was responsible for one of these. A smaller series of classical sections done by the same operators showed a mortality of 4.76 per cent. It must be remembered, furthermore, that these were more or less picked cases, while the cervical section was used many times on unfavorable cases after long labor, attempts at delivery, and even when known to be slightly infected.

The immediate morbidity is definitely lowered, shock is decreased, hemorrhage is absent or only slight, and the patient's convalescence is much smoother. Vomiting, tympanites and severe pain are rare. Peritonitis is feared much less because Hofbauer has shown definitely that the lower uterine segment resists infection better than the fundus. Added to that, is the fact that the incision is completely covered by the peritoneal flaps. Healing of the lower segment incision is better and more prompt because of being placed in the non-contractile portion of the uterus. Danger of rupture of the uterus is minimized tremendously because of this fact. There are on record only twenty-two cases of rupture of a low cervical scar and all but three of these have occurred during labor. Danforth and Grier, in a very recent paper, report rupture of the scar after the classic operation in 4 per cent of cases. One-fifth of these occur between seven months and eight and one-half months, so that a woman who has had a classic section is not safe at any time during the latter part of her pregnancy.

Worthy of repetition is the fact that laparotrachelotomy may be employed, without materially increasing the hazard, after the patient has had a reasonable test of labor. This is of especial value in borderline cases, as nature frequently surprises with an easy delivery from below when dystocia was expected. It is to be hoped that the safety of the new operation will make possible the doing of fewer sections because of our being able to allow the patient the test of labor. It will be unfortunate if the safety feature of this abdominal section encourages obstetricians to substitute it for other sound obstetrical principles except in cases where sharply indicated.

THE CHILDHOOD TYPE OF TUBERCULOSIS. Eugene F. Johnson, M.D., Nopeming, Minn. Minn. Med., Sept., 1930, p. 613.

Much is being written on the relation between adult and childhood tuberculosis. This paper presents some illustrative cases from the Nopeming Sanatorium. Childhood tuberculosis is the result of a primary infection with the tubercle bacillus and the initial lesion may be anywhere in the lung. Adult tuberculosis is the result of reinfection and the lesions are usually at the apices and along the pleura. The associated tracheobronchial lymph nodes are always involved in the childhood type, while in the adult they are not involved except in the terminal stages. Caseous lesions in the primary type become encapsulated or calcified, whereas in the adult type they excavate or fibrose, or both. In the childhood type, infiltration areas commonly resolve with little evidence, while in the adult type infiltrated areas resolve with production of fibrous tissue. These changes are shown by x-ray examination nad must be borne in mind in interpreting x-ray densities.

THE TREATMENT OF PNEUMONIA WITH QUININE

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Quinine has specific toxicity for pneumococci, I believe I have proved, both in the culture tube and in the patient.

During the winter of 1907-1908, while superintendent of the Missouri State Sanatorium for Tuberculosis, I treated a considerable number of cases of pneumonia.

This was the day of nihilism, especially for pneumonia, in which it was contended that no drug had beneficial effects. There came to my attention an article by Dr. J. W. Galbraith[1], of Cananea, Mexico, in which he reported fifty consecutive cases of pneumonia treated with quinine without a death. Abstracts of four of his case reports relative to his dosage of quinine are herein presented.

Case one: Eighteen hours after onset of pneumonia, had 45 grains of quinine; one hour later, 30 grains; and four hours later, 20 grains, making a total of 95 grains within five hours.

Case two: Four days after taking ill, was given in one large dose 75 grains; one hour later, 40 grains; and four hours later, 40 grains, making a total of 155 grains in five hours.

Case three: A few hours after taking ill, was given 50 grains of quinine; one hour later, 30 grains; the next day, 35 grains; and one hour later, 20 grains, making a total of 135 grains inside of twenty-four hours.

Case four: A case with double pneumonia, seen two days after onset of disease, was given 50 grains of quinine; one hour later, 30 grains; and the next day, 35 grains, making a total of 115 grains within the course of 24 hours.

Galbraith was of the opinion that quinine is a heart stimulent. He says that he had no unfavorable symptoms in using quinine even in the large amounts.

The cases reported by him terminated apparently by slow lysis.

I began using the quinine in 15 to 20 grain doses, at intervals of two to four hours, until the desired effect was obtained or until demonstrated that no good was likely. There was unquestionably, in many cases at least, a decidedly beneficial effect.

That winter was a severely cold winter with changeable temperature and there were many severe colds. I began using the quinine for colds as well as for pneumonia and found that it seemed to act equally as well with many cases of colds as in pneumonia.

So impressed was I with the results that when I went back to St. Louis I began a series of experiments to ascertain what effect quinine had upon pneumococci. I tested 67 strains of pneumococci, i. e., pneumococci obtained from 67 different patients with various types of the infection. All were found highly susceptible to quinine.

Controls were run with other organisms such as typhoid bacilli, staphylococci, streptococci, colon bacilli, and so forth; these bacteria were not noticeably influenced in their growth by quinine. It even seemed that typhoid bacilli might grow a shade better with the quinine than without it.

The plan of the experiments was as follows: Broth medium was prepared and to one-half of it was added quinine to give the medium a concentration of one-tenth of one per cent of quinine. Both media were made to have the same reaction. A broth culture of pneumococci was shaken and from it two loops were placed in one or two tubes of plain broth and one or two tubes of quinine broth. These tubes were then shaken and two loops of broth from each were placed in melted agar medium which was at once plated. This was repeated in one hour and in two and three hours, and often at later periods. At the end of 12 to 24 hours of incubation the plates were examined and the number of colonies counted or carefully estimated.

A few average protocols of the experiments selected from the hundreds which were done are as follows: (The name following the date is the name of the patient from whom the pneumococci were obtained.)

Inst. Plates	One Hr. Plates	Three Hr. Plates
	April 28, 1911, Sparks	
400	2,000	5,000
300	200	0
	May 4, 1911. Hei.	
2,000	100,000	100,000
2,000	500	2
2,000	500	4
	May 4, 1911. Seel	
10,000	30,000	100,000
10,000	2,000	18
10,000	30,000	100,000
10,000	2,000	60
	May 15, 1911. Connors	
10,000	10,000	50,000
10,000	0	0
10,000	10,000	50,000
10,000	1	0
	May 19, 1911. Hamm.	
5,000	10,000	50,000
5,000	2,000	500
5,000	10,000	50,000
5,000	2,000	500
	May 19, 1911. Easly.	
5,000	10,000	50,000
5,000	2,000	500
5,000	10,000	50,000
5,000	2,000	500

May 26, 1911. Mark.		
10,000	30,000	50,000
10,000	2,000	200
10,000	30,000	50,000
10,000	2,000	200
June 1, 1911. Conners. Media—.5.		
2,000	5,000	10,000
2,000	50	0
2,500	5,000	10,000
3,000	200	0
June 8, 1911. Connors. Media—1.5		
2,000	5,000	10,000
2,000	1,000	0
2,500	5,000	10,000
3,000	10	0

Inst. Plates	1 hr. Plates	2-hr. Plates	3-hr. Plates
June 27, 1911. No. 311, Rosenow. Media .5			
200	600	1,000	3,000
200	200	200	200
June 27, 1911. No. 79, Rosenow.			
200	4,000	10,000	10,000
200	200	50	10
June 27, 1911. No. 549, Rosenow			
500	8,000	10,000	10,000
500	2,500	2,500	2,500
July 1, 1911. No. 556			
3,000	5,000	5,000	0
3,000	5,000	2,000	0
July 1, 1911. No. 79			
2,000	3,000	Contamination?	1,000
2,000	5,000	Contamination?	0
July 1, 1911. No. 594			
5,000	15,000	0	0
5,000	2,000	0	0
July 29, 1911. No. 509			
10,000	8,000	16,000	30,000
10,000	5,000	4,000	3,000
July 29, 1911. No. 546.			
5,000	10,000	20,000	50,000
5,000	2,500	2,000	1,000

It will be observed from the protocols given above that pneumococci in the first nine experiments given are readily killed by quinine. In the Hamm and Easly cultures, and to a less extent in the Mark culture, the pneumococci were less susceptible to quinine than in all the other experiments with fresh cultures of pneumococci; but even with these the deterrent effect of quinine was marked. In the 46 cultures of pneumococci which I isolated from that many patients, none were more resistant to the effect of the quinine than were the Hamm, Easly and Mark cultures.

The cultures which were supplied me by Dr. Rosenow were several years of age and many of them nearly extinct because of the dried-up condition of the culture media. As probably was to be expected, these organisms proved more resistant to the quinine than were the fresh cultures. There was, however, as will be observed from the protocols, a marked deterrent action to the growth of these pneumococci, by quinine. Several of these old cultures behaved in a way which was impossible at that time for me to understand; occasionally, even without the quinine, after some hours there would be a disappearance of all growths. This was before the day of bacteriophages and no doubt I was dealing with bacteriophages in certain of the old cultures.

I did a considerable number of experiments to ascertain if there was any difference in the action of quinine when used as a pure alkaloid and used as one of the other salts of quinine. There was no great difference; there seemed to be a slight advantage in favor of the pure alkaloid of quinine. It goes without saying that these solutions were made up so that there would be the same percentage of alkaloid of quinine in each group of experiments.

A considerable series of experiments were done to ascertain if the reactions of the culture media had any decided influence upon the growth of pneumoccoci. The protocols showing dates of June 1st and June 8th show that the media within certain limits had no influence upon the growth of pneumococci.

I have used quinine in literally hundreds of cases with respiratory tract infection. In a good percentage of these there is a prompt and undoubtedly beneficial effect from the quinine; in others, there is little or no effect. In most cases of typical lobar pneumonia where I have given quinine early and in large doses, there has been usually a great improvement noticed within a few hours. The temperature falls, and the patient develops a feeling of well being, except for the cinchonism, which is usually not a serious factor. The signs of congestion and consolidation rapidly disappear when the treatment is begun early in the disease, and the entire progress of the disease is checked. This has happened too often in my experience for it to be explained simply as an early crisis.

In a case now and then, if the quinine is discontinued at this stage, there will come a second congestion of the lungs and the quinine must needs be repeated. I think of this sort of case as being analagous to the test tube experiment done on May 19, 1911, with the Easly culture, in which there were 500 pneumococci, in the quinine tube, still alive after a three-hour exposure to the quinine. Theoretically, at least, when two loops of culture medium contained 500 live organisms, the organism if removed from the presence of quinine would likely begin to grow and in a patient might overwhelm him rapidly. For this reason the quinine should not be discontinued too early.

Even though the patient is not seen until pneumonia has well developed, the general toxicity evidence of the disease is often ear-

ly controlled by the quinine; resolution is speeded more than would be expected under a normal lysis. My experience teaches me, I repeat, that the quinine should be continued for a considerable period of time.

I commonly use the pure alkaloid for mouth administration. I have it put up in five-grain capsules and I give one capsule each hour until four or more doses are taken, and then continue one dose every four hours until a decided, or no, effect is well established. I have used the quinine dihydrochloride as an intramuscular injection, with satisfactory results. For children I use the quinine in a chocolate mixture.

I cite the record of one patient who was desperately ill with pneumonia of several days' standing; temperature was 105 degrees with patient wrapped in ice sheets, respiration was rapid, pulse was frequent and delirium was extreme; death appeared to be imminent. She was given dihydrochloride of quinine in 15 grain doses intramuscularly at intervals of a few hours until she had 105 grains. She recovered with miraculous rapidity we believed, from the quinine.

Another case: A child, six years of age, when first seen had what appeared to be a severe cold; she was given sodium benzoate and seen 12 hours later without any apparent improvement. The dosage of the benzoate was doubled and she was seen about 10 hours later, with definite upper lobe pneumonia. The dosage of sodium benzoate was again increased and she was seen four hours later. The area of pneumonia was increased; she was given quinine in a cocoa preparation, in fair sized doses, in place of sodium benzoate, and she was seen about eight hours later. She was a different-appearing child; she no longer appeared desperately ill; the area of pneumonia was decidedly decreased. She was seen 12 hours later and she appeared to be well and the area of pneumonia was difficult or practically impossible to find She made a most satisfactory recovery within the next few days the quinine being continued in small doses.

Dr. Kolmer[2], some years after my experiments were done and a preliminary report[3] of them given, had results in experiments with ethyl hydrocuprein hydrochloride which confirmed my findings.

I might report a long series of these cases after 23 years' use of quinine, but they would not be as convincing as the statement that my conclusion, after the treatment of hundreds and hundreds of cases with quinine, is that quinine should be tried in all cases of frank lobar pneumonia, in bronchial pneumonia and in most cases of acute or even of chronic infection of the upper respiratory tract, unless there is an idiosyncrasy to quinine or some other good reason for not using it.

In the last decade, especially in Germany, there has accumulated a considerable literature testifying indisputably to the value of quinine in pneumococcic disease. For the most part they have used a proprietary preparation combining quinine and camphor in volatile oil for intramuscular injections. At first they used quinine hydrochloride with urethane for intramuscular injections. I have not used combinations of quinine and camphor until lately but on theoretical grounds it has not seemed to me to offer advantages to the pure alkaloid of quinine, by mouth. I have, however, used quinine dihydrochloride for intramuscular injections with satisfaction, though it is moderately painful.

The Germans have used quinine, however, for a number of conditions which I have not attempted to treat with it. They have used it in lobar, postoperative, hypostatic and bronchial, pneumonia; suppurative lung processes; pulmonary tuberculosis; asthma; bronchiectasis; bronchitis; influenza, and colds.

Dr. C. E. Cahn-Bronner[4] began using quinine in 1923 and gives credit to Professor Aufrecht[5] of Magdeburg for recognizing as early as the nineties that quinine had specific toxicity for pneumococci; he greatly reduced his pneumonia mortality by its use. Cahn-Bronner confirmed Aufrecht's claims and found that quinine was often effective in croupous pneumonia. He says that so many remedies have been recommended for pneumonia without positive proof of benefit, and quinine is such an old, old drug, that a natural doubt has been aroused as to the value of quinine in pneumonia. It has been his opinion that the good effect of quinine in pneumonia is dependent upon parenteral introduction. He says that parenteral injections create a depot of quinine in the body. The inflamed lung contains quinine in higher concentration than that in the blood. Others cofirm his opinion.

Gaza and Braudi[6] studied pain from the injections of various quinine salts and found that the pain was in direct proportion to the hydrogen ion concentration. A solution with a p^H of 7.2 was best adapted. This led to the preparation of quinine and camphor in volatile oils.

Harlan F. Newton and Kurt Heine[7] describe the preparation which has been generally used by the Germans for intramuscular injection as a sterile solution of .03 Gm. basic quinine and .025 Gm. camphor in

one c.c. of aromatic oils. It is held by certain observers that there may be slight virtue in the oils due to the phenols and terpenes which they contain. These authors report that chronic pulmonary phthisis may be much benefited by the use of quinine. Their best results were obtained in certain cases by combining tuberculin and quinine.

Flewelling[8], of America, is of the opinion that camphor and volatile oils at least facilitate the solubility of the insoluble quinine if they do not act as adjuvants to the quinine.

L. H. Van Del Velde[9] reports that the use of quinine reduced his death rate in pneumonia from about 25 per cent to 5 to 6 per cent.

Alfred Alker and Edward Woldmann[10] report excellent results in the treatment of bronchitis, bronchiectasis, and tuberculosis. He reports one bronchiectatic case restored to practically full capacity for work by injections of the combination of quinine and camphor in oils. Consumptive patients uniformly had their temperature and sputum reduced.

W. Loercher[11] used quinine in postoperative pneumonia and febrile postoperative bronchitis, with excellent results. He speaks of the danger of discontinuing the quinine too early in the course of treatment.

S. Butenwieser and A. Reuter[12] found quinine effective against bronchiectasis, purulent bronchitis, and purulent bronchopneumonia. There was marked diminution of the copious sputum and of the fever. In over 500 injections they had not one untoward result.

Kurt Radicke[13] says, that if the circulation can be rendered normal, injections of the quinine and camphor compound rapidly removes the congestive bronchitis, and makes emphysemic patients feel much better. The drug is indicated in certain infectious cases of asthma and good results may be expected from it. In pneumonia in children he reports good results in all cases. In bronchitis with measles he also obtained good results. He also noticed that rhinitis and conjunctivitis were not so frequent nor so violent when quinine was used as when it was not.

Gunther Wolff[14] used the quinine camphor preparation in 100 cases of bronchitis after other treatments had failed; in only 10 per cent did he not get excellent results. General catarrhal symptoms were greatly improved. If treatment is to be successful, good results will be apparent, he says, after the first few injections; the patients' tasting the medicine promptly is a good sign.

Joseph Poras[15] thinks quinine and camphor in volatile oils is of high value in the treatment of the mixed catarrhal infection of pulmonary tuberculosis.

Others who have written upon the advantageous use of quinine and camphor in volatile oils in respiratory infections are Gutzeit[16], Wintz[17], Von Bergmann,[18], Niessen[19], Iwahoff[20], Ballman[21], Rossius[22], Hofbauer[23], Davos Wolfer[24], Muller-Deham[25], Schott[26], Bottner[27], v. d. Velden[28], Yamada[29], Pur[30], Weinberger[31], Kirsch-Hoffer[32], Radicke[33], Brauer[34], Jung[35], Scholten[36], Papellier[37], Deckert[38], Quednau[39], Lazaroff[40], Duken[41], Schierge[42] Strisower[43], Gorl[44], Hegler[45], Deicher[46], Lust[47], Matousek[48], Scholz[49], Fleckseder[50], Saphra[51], Krech[52] and Berger[53].

Their testimony is almost universally to the effect that quinine is beneficial in respiratory tract infections.

Hummelet[54], Selhausen[55] and Naucke[56], have had success with quinine in veterinary practice for respiratory tract infections.

F. B. Cross[57] summarizes the work upon various quinine derivatives in pulmonary affections and quotes from Solis-Cohen, Kolmer and Heist; these workers found that ethylhydrocupreine hydrochloride in 1/40,000 solution causes destruction of pneumococci, whereas other quinine preparations in 1/4000 to 1/7000 causes death of the pneumococci. Those who have written upon the value of ethylhydrocupreine are Morgenroth and Levy[58], Moore[59], Kolmer[60], Idzumi and Kolmer[61] and others.

Ethylhydrocupreine (numoquin or optochine) evidently has sufficient pneumococcidal effect but it is highly toxic, causing amblyopia, permanent contraction of visual fields and even blindness.

The ethylhydrocupreine hydrochloride seems to have no advantage over quinine except its higher toxicity for pneumococci and this is offset by its increased toxitity for the patient.

SUMMARY

Quinine has a high specific toxicity for pneumococci.

This is proved by hundreds of test tube experiments. Sample protocols are given in the text.

My own experience in the clinical use of quinine in the treatment of pneumococcic disease has been highly satisfactory. A few typical case reports are given.

Aufrect of Europe and Galbraith of America seem to be the original advocates of quinine in the treatment of pneumonia. A few case reports showing Galbraith's method of using quinine are given.

The German literature has numerous reports testifying to the good results obtained in various respiratory tract infections,

They evidently have not believed it will destroy pneumococci.

Ethylhydrocupreine is more toxic to pneumococci than is quinine and also far more toxic to the host.

The Germans held that quinine has a superior action when administered intramuscularly to that when given by mouth. They use a mixture of quinine with camphor and volatile oils.

I have used quinine both by intramuscular injection and by mouth and I think there is no great difference in the efficiency of the two methods.

Administration of large doses of quinine gives occasional uncomfortable pharmacologic effects; but these need cause no worry. It should be explained to the patient, however, that the large doses of quinine and the rapid killing of a large number of bacteria in his body may be expected to make him feel ill.

From the experience of the Germans, in combination with my own, I believe that one should try quinine in most cases of lobar, bronchial and postoperative pneumonia, in bronchiectasis, pulmonary phthisis and abscess, sinusitis, rhinitis and other types of upper respiratory tract infection.

In the event that pneumococci are in no wise concerned in the process for which the quinine is being administered, I should expect it to be of no efficacy.

Whether the compound of quinine, camphor, and volatile oils, intramuscularly has virtue over the alkaloid of quinine orally or the dihydrochloride intramuscularly, I am unable to say.

REFERENCES

1. Galbraith, J. W.: J.A.M.A. 44, (Jan., 28), 1905, and 43, (July 9), 1904.
2. Kolmer, J. A.: Infection Immunity & Biologic Therapy, W. B. Saunders Co., Ed. 3, 1924, page 965.
3. Brown, Orville, Harry: Preliminary Report, Science.
4. Cahn-Bronner, C. E.: Therap. d. Gegenw., 1925, 66, p. 338; The Med. World, 28, 25, 1928.
5. Aufrecht: Nothnagels, spez. Path. u. Therap., 156.
6. Gaza and Braudi: Klin. Wchnscr., June 18, 1926, p. 1123.
7. Newton, Harlan F.; and Heine, Kurt: Am. Rev. Tuberc., 18, (Nov.) 1928, p. 563.
8. Flewelling, L. M.: M. Jour. & Rec. 129, (April 17) 1929, p. 446.
9. Van Der Velde, L. H.: Nederl. Tijdschr. v. Geneesk.
10. Alker, Alfred; and Woldmann, Eduard: Deutsche Med. Wchnschr, 1925, 51, p. 1365.
11. Loercher, W.: Munchen, med. Wchschr., 1925, 72, p. 1692.
12. Buttenwieser, S.; and Reuter, A.: Therap. d. Gegenw. (April) 1927, 68, p. 163.
13. Radicke, Kurt: Therap. d. Gegenw., (Dec.) 1926, 67, p. 537.
14. Wolff, Gunther: Therap. d. Gegenw. 11, 1929.
15. Poras, Joseph: Die Tuberkulose, 5, 1929.
16. Gutzeit: Therap. Umschau, Fortschritte der Therapie 15, 1925, M.M.W. 40, 1925.
17. Wintz: Tagung der deuts. Rontgenologen. Prag. Oktober, 1925.
18. Von Bergmann: Aerzl. Verein., Frankfurt a. M. Sitzung. v. 2, XI, 1925.
19. Niessen: Aerztliche Rundschau, Munchen, 15, 11, 1925.
20. Iwahoff: Wratschnebnaja Gasetta, No. 1, 1926.
21. Ballmann: Therapie der Gegenwart, 7, 1926.
22. Rossius, Fortschritte der Therapie, 13, 1926.
23. Hofbauer: Wiener Med. Wo. 29, 1926.
24. Wolfer, Davos: Schweizer Mediz. Wo. 25, 1926.
25. Muller-Deham: Wiener klin. Wchnschr. 47, 1926. Wiener plin. Wochnschr., 3, 1927, and 17, 1928.
26. Schott: Deutsch med. Wchnschr., 30, 1926.
27. Bottner: klin. Wchnschr. 41, 1926.
28. v. d. Velden: Deutsche Wchnschr., 51, 1926.
29. Yamada: Monatssch. f. klin. Med. 11, 1926. (Kobe, Japan).
30. Pur: Casopisu lekaru ceskych, 4, 1927.
31. Weinberger: Wien. klin. Wehnschr 6, 1927.
32. Kirsch-Hoffer: Wien. klin. Wehnschr. 14, 1927.
33. Radicke: Medicina moderna 1, 1927, Valparaiso.
34. Brauer: Tung-Chi. Mediz. Monatschr. 8, 1927.
35. Jung: M.M.W. 44, 1927.
36. Scholten: Der prak. Arzt 21, 1927.
37. Papellier: Die Therapie. Dez. 1927.
38. Deckert: Therapie der Gegenwart, 12, 1927.
39. Quednau: Dissertation, 1927.
40. Lazaroff: Inaug.-Dissertation, Okt. 1927.
41. Duken: Ztschr. f. Kinderheilkunde, Bd. 44 Heft 1, 2.
42. Schierge: Der prak. Arzt. 6, 1928.
43. Strisower: Wien. klin. Wchnschr. 14, 1928.
44. Gerl: Munch. med. Wchnschr. 24, 1928; Die Mediz. Welt 42, 1928.
45. Hegler: Vortrag im Aerzteverein, Hamburg 12, Juni 1928 and Mediz Welt 26, 1928.
46. Deicher: Munch. Med. Wchnschr. 28, 1928.
47. Lust: Diagnostik und Therapie der Kinderkrankheiten, 1927.
48. Matousek: Prag. Practicky Lekar 16, 1928.
49. Scholz, Harry: D.M.W. 35, 1928.
50. Fleckseder: Wien. med. Wchnschr. 38, 1928.
51. Saphra: Ztschr. f. arztliche Fortbildung, 19, 1928.
52. Krech: Deutsche. med. Wchnschr., 47, 1928.
53. Berger, W.: Wien. klin. Wchnschr. 39, Aug. 26, 1926, Abst. J.A.M.A. 87, (Nov. 13), 1926, p. 1694.
54. Hummelet: Tierarztliche Rundschau, 30, 1926.
55. Selhausen: Tierarztliche Rundschau, 47, 1927.
56. Naucke: Tierarztliche Rundschau, 6, 1928.
57. Cross, F. B.: Long Island Med. Jour. & Rec. 21, 132, Mch. 1927.
58. Morgenroth and Levy: Berl. klin. Wchnschr. 1911, 48, 1561, 1650, 1779, 1983.
59. Moore: J. Exper. Med., 1915, 22, 551.
60. Kolmer: J. Infect. Dis., 1917, 20, 313.
61. Idzumi and Kolmer: J. Infect. Dis., 1920, 26, 355.

HIGHLIGHTS OF THE BRITISH MEDICAL ASSOCIATION

DUDLY FOURNIER, M.D.
Phoenix, Arizona

(Read before the Maricopa County Medical Society, Sept. 15, 1930.)

The meeting of the British Medical Association was held in Winnipeg, Manitoba, from Aug. 23 to Aug. 29, 1930. There was a registration of over 3000 doctors from the United States, Canada and Great Britain. There were many famous men from across the Atlantic. Lord Dawson, of Penn, the King's physician during his last illness, was probably the best known.

The first paper of interest was one on coronary thrombosis and angina pectoris, by John Parkinson, of London. His opinion is that patients suffering with angina are not suffering with heart disease, but from arterial disease, and that it is a particular form of arterial sclerosis. Usually the heart findings are negative. X-ray examination of the aorta should always be done, as atheroma of the aorta is easily distinguished, and is practically always present in angina.

In cardiac thrombosis he said, "We were looking on a case of cardiac infarct. The pain was always directly behind the sternum. In one third of these cases electrocardiogram showed nothing, and in two-thirds of the cases the change shown was diagnostic." The tracing showed what he called a plateau, and this plateau followed by a T inversion is characteristic of coronary thrombosis. Prognosis, he said, is grave if failure follows coronary thrombosis. "The treatment consists of six weeks in bed, and a change of the patient's mode of living. If it is necessary, we must be prepared to frighten the patient some." The drug treatment is simple. Plenty of morphine, and avoidance of amyl-nitrate. We should strive to diagnose the milder cases. They usually give a history of an attack of indigestion, and this has usually been a mild attack of thrombosis. The electrocardiogram is a great help in diagnosing these mild cases.

Dr. Donald Patterson read a paper on celiac disease and pyloric stenosis. In celiac disease he advocated a high-protein, low-fat diet. The metabolism of carbohydrates is now being intensively studied in this disease. He said that bananas and glucose are well tolerated, but starches are not. The gastric contents show an absence of Hcl. For this reason 10 to 30 minims of dilute HCl should be admniistered three times a day.

In pyloric stenosis, Rammstedt's operation holds out the best chance of success, but the baby should be operated on early, as after eight to ten weeks the mortality rate is very high.

Dr. Robert Hutchison, of London, gave a very interesting talk on the pursuit of health. Said he, "The old anxiety about health may show itself in one of three ways." First, the diet-faddists were condemned as the most malignant of all. One swears by whole-wheat bread, another by sour milk. Vegetarianism is the only road to salvation in the eyes of some. Others insist on eating only raw vegetables. And others are crazy about vitamins and roughage. The scientific truth about all this diet business, he said, could be put briefly. Eat moderately, taking an ordinary mixed diet, and don't worry about anything else. As to calories, our appetite is given to us to tell us how much food we need and our health is usually a trustworthy guide. Leave raw vegetables to herbivorous animals and let the vitamins look after themselves. Investigation has shown that there is no real merit in whole-wheat bread as opposed to white bread but he advised not to scrape your insides with much roughage as it is likely to do more harm than good. He said to remember that fruit, though a pleasing addition to the diet, is not very nourishing, and that milk is both bulky and bilious; that vegetarianism is especially unsuitable for children and sedentary workers; and that few diseases are either caused or cured by diet alone.

The second type of anxiety is overanxiety about others. The fuss begins at or before birth and is continued throughout childhood. The rearing of an infant requires the combined knowledge of a chemist, a psychologist and a public officer of health and it is far from certain that the children of today are healthier or happier than their predecessors of a more careless generation. There is no doubt that the atmosphere of fuss and anxiety in which so many children are raised reacts on them unfavorably with the result that nervous troubles are commoner today in childhood than ever before. He said children should be allowed to get the infectious diseases when they are young as they are far less serious then than when contracted in adult life. Dr. Hutchison is apparently not in favor of periodical health examinations, for this, in part, is what he said: There has lately been a movement in favor of periodical medical examinations. The idea is that diseases may be detected in their early stages and be corrected before they have gone too far. That this would happen sometimes can not be doubted; but there can be equally little doubt that most of the defects which such examination would re-

veal, the patient had better know nothing about, as it is wonderful how the machine gets along if one does not worry too much about it. Dr. Hutchison said that he believed that most health propaganda is based on two fallacies: one, that health is difficult to attain and keep; and the other, that can be got by following certain rules. There are no rules which apply to every individual.

In the symposium on the uses of radium and surgery, Dr. Malcolm Donaldson, of London, said there is reason to hope that surgical operations for cancer will be abolished altogether by the use of radium, and he told of his own method of treating the glands involved in cancer by means of a direct application after an abdominal section operation. A week later, the operation is repeated to remove the cancer. The drawback to this is that it involves two operations within a week.

Dr. W. W. Chipman, of Montreal, declared that the records of most of the large clinics of the world have shown that radium has cured 20 per cent of all cases treated for carcinoma of the cervix, saying that radium is the only effective teratment for cancer in the most advanced stages, and even in the early stages it shows a superiority over the operative method. Professor Chipman warned that only highly trained experts should handle radium and said that it was unwise for any doctor to attempt to use it. He believed that, when the cause of cancer is known, it will be realized that surgery is not the cure. He declared that the best surgery can do is not equal to present-day radium results. Dr. Chipman declared that in uterine hemorrhage radium is a therapeutic blessing. There was a lot of discussion over these papers and much handclapping and feet-stamping when Dr. Gordon Luker, of London, arose and said that after numerour experiments with radium he has discarded the treatment in favor of the knife and radical surgery.

Professor Archibald, of Montreal, gave an address on the scope of thoracic surgery. At present he said that the best work is being done by the general surgeon but there has to be good teamwork. In Montreal the Surgical Thoracic Clinics were definitely organized and reached their decisions only after the fullest discussion. Dr. Archibald said that teamwork is of the greatest value and is, in fact, a necessity. He cited the results of 275 cases treated in the Montreal Hospital. No operations were attempted without a thorough examination of the patient's scars, to determine resistance and recuperative powers.

Professor Collip, of McGill, who was a coworker of Banting in the discovery of insulin, took a prominent part in the program. He has recently isolated two substances: one is the secretion from the parathyroid glands which, when injected, will bring about speedy improvement in cases of low calcium conditions in the body. He said there is an interrelation between the parathyroid hormone and vitamin D. The other substance recently discovered is a placental hormone which he has called emmernine. This substance is given by mouth and exerts a remarkable effect in cases of dysmenorrhea, menorrhagia, metorrhagia. He stated that the placenta stores up hormones in the ovary.

Before closing, I want to tell you of one more subject—that on Psychic Research, by T. Glenn Hamilton, of Winnipeg. But for the convincing way and the apparent truthfulness in which he put the subject over, one would be inclined to believe it all a fake. Dr. Hamilton showed photographs taken during these experiments. Some of them he indicated might appear ridiculous but their genuineness had been sought in every possible manner. He had taken all the precautions he could devise against fraud, mistake and even deception. He gave an account of his experiments through mediums. These were human subjects who could place themselves in a passive condition, generally in deep trance, enabling a peculiar force to be used for the production of various phenomena. One of these phenomena he called telekinesis, which was the movement of objects at a distance from the medium and without any visible contact. He showed actual photographs of tables and chairs suspended in mid-air presumably by this force called telekinesis. He showed other photographs of a mass of ectoplasm protruding from mouth, eyes and ears of other mediums and some of this ectoplasm had photographs of faces within. It was all very pretty and marvelous but a bit hard for me to swallow.

CASE REPORTS

(Good Samaritan Hospital Staff Meeting)

Intussusception

Robt. T. Franklin, M. D.

Boy, age 16, came to my office the morning of March 14th, complaining of a pain in the abdomen—more marked in the lower right quadrant. This pain had developed the preceding afternoon and was accompanied by nausea and vomiting. Temperature at that time was 99 and a fraction. No masses could be palpated and a diagnosis of acute appendix was made. White blood count at that time was 13,600.

The child was immediately taken to the hospital. Under spinal anesthesia, operation was performed by Dr. Leff and myself. Rectus incision was made,

and appendix appeared normal; but a large mass was found in the cecum which proved to be a mass of intussuscepted ileum. We were unable to reduce this mass, and opening was made in head of cecum after area was well packed with lysol sponges. The mass delivered from the cecum was necrotic and foul-smelling. It was tied off and removed; then an end to end anastomosis was made, and opening in cecum was closed. Abdomen was closed with a cigaret drain. Operation took longer than was expected, so it was necessary to complete the closure under ether.

The patient ran the usual train of symptoms of localized peritonitis. Temperature gradually subsided. Drainage was free until April 2nd, when it became scarce. Simultaneously, temperature again made a rise. At this stage, Dr. Raney was asked to see the patient in consultation. Dr. Kicklighter had previously attempted to reopen the drainage sinus with hemostat, but was unable to get any more drainage. Dr. Raney suggested that we watch patient for a day or two to see if drainage would not start. We also considered the possibility, at that time, of a subphrenic abscess but symptoms were not suggestive.

Drainage started a day or two later, and temperature dropped. Patient continued to improve. Drainage gradually decreased. On April 11th, temperature again rose, and patient became markedly jaundiced. Careful inquiry into previous history showed that the patient had had similar attacks of jaundice without any hepatic or gallbladder pain. This cleared up under salines, and patient is now walking around with no drainage, and incision is almost entirely healed.

Discussion

Willard Smith, M.D.

Dr. Jordan has asked me to discuss this very interesting case of Dr. Franklin's. Inasmuch as the case was still in the hospital when this request was made, I did not review the case history until after I had secured permission from Dr. Franklin, which is in accordance with a certain regulation recently enacted by the staff.

This lad is 16 years old. The historian informed me that he had been considered as a pediatric case. This brings up the question as to where pediatrics ends. I take it that the young man must have been under-developed not to have reached puberty at the age of 16, and this mught have some diagnostic significance, if such is the case.

Intussusception seems to be peculiarly a condition which obtains in childhood or infancy and is very rare in the adult. The symptoms as stated on the chart could not well have been interpreted in any other way than to assume that the patient had an acute abdomen. These symptoms also pointed very definitely to its being acute appendicitis. The fact that it was acute, and that it had all the earmarks of acute appendicitis, entirely justified the diagnosis and the treatment instituted—namely, laparotomy. Whenever an abdomen is opened, the surgeon must be prepared to meet any possible intra-abdominal lesion and deal with it correctly on the spur of the moment. This demands concentration, which of necessity takes a good deal out of the operator. The custom of having the operative notes recorded immediately after the operation is completed is rather unfair to the surgeon, for he should have time to react from the operative strain and become adapted to the shift from his proper function as a surgeon to his vicarious literary function. I mention this because the chart says the intussusception involved six inches of ileum; when Dr. Jordan called me up, he spoke of eight inches of ileum, and when I spoke to Dr. Franklin, he mentioned eighteen inches of ileum. The point is, however, that Dr. Franklin dealt with the emergency exactly as he should and with a very happy result. Too often this class of case does not survive. Dr. Franklin is to be congratulated upon having secured so excellent a result. The fact that infection appeared and the patient became septic some seventeen days after the operation, is just part of the luck of the game. The fact that the complication was weathered and the patient reacted in a very few days and went on to recovery, shows that the emergency was intelligently met. I think the doctor deserves to be congratulated upon his good work.

Another question which this case history brings up is a practical one regarding statistical filing. On the first page of the case history is a space for diagnosis. In one hospital the rule is made that this space must be filled the first day the patient is in the hospital. I believe it is the custom in this hospital to have this filled in when the true diagnosis becomes certain. The latter course strikes me as being the better course. The object of records is to record facts, not speculations, and while it is interesting to note the variations between the preliminary and the proved diagnosis, this is not the object of hospital statistics. I thoroughly approve of the custom which prevails in this hospital. I would even go farther and say that this particular space should not be filled until the day the patient leaves the hospital.

Asthma-Bronchopneumonia in Infant

Walter P. Sherrill, M.D.

This case is that of a sixteen-day-old baby. It was a full-term baby, normal delivery and had been fed on Eagle Brand milk every three hours. The family history was negative with the exception that the mother was subject to severe attacks of urticaria. The child was first brought to the office on March 27th, was well nourished, weighing 8 pounds and 15 ounces. The respiratory rate was 40 to 50, and the rectal temperature 99. The respirations were labored, expiration long and difficult. There were innumerable bronchi and wheezes throughout both lungs. The rest of the physical examination was negative. Two injections of adrenalin, 1½ minims each, were given with a fifteen-minute interval. The respiration returned to normal, and the child was taken home. The mother returned the next morning with the child, which was in almost idenitcal condition as on the preceding morning. The temperature was still normal and the adrenalin was repeated, with immediate relief of symptoms. The mother returned the following morning for the third time with the child and said that it had been perfectly well until the early morning hours, when its symptoms returned. The adrenalin was repeated with some results and the mother instructed to remove the child from its environment, as the removal of suspicious objects had proved of no avail. She decided to take the child to her mother's at Gila Bend and left that afternoon. She stated that the child remained well there until the following morning, when its symptoms returned and it had a convulsion. A local physician was called in and told them that the child was in a very critical condition and should be returned to Phoenix at once. This was done Monday morning, the child having had many convulsions in

the meantime. On its arrival in Phoenix the child was having convulsions and was extremely cyanotic. Oxygen was administered and after two or three hours the color showed marked improvement. Respiration stopped several times during the first afternoon of its admission, artificial respiration and oxygen and adrenalin being administered. Its temperature up to this time had been less than 100 degrees by rectum.

The child remained in the hospital for seven days. During the week it continued to have convulsions at frequent intervals and on several occasions respiration stopped. The cyanosis was of such a type as to suggest a patent foramen ovale. On the third day in the hospital the child developed fever, its respiration increased from 60 to 70 and physical signs of pneumonia developed.

The child died on the seventh day after admission.

CASE REPORT

(Occlusion of Superior Mesenteric Artery)

(Reported at the Staff Conference of St Joseph's Hospital, Phoenix, Arizona, Feb. 9, 1931).

Report of Case by Dr. Howell Randolph

Mrs. A.R., age 63, housewife. First admission Oct. 31. Chief complaint, shortness of breath and swelling of the ankles.

F. H. One daughter dead tuberculosis. Three children living and well.

P. H. Eighteen years ago left leg swollen from "varicose veins," no physician called. Thirteen years ago had a goiter. No treatment. No rheumatic fever or tonsillitis. No operations. Average weight 170 to 180; present weight 170.

P. I.: Patient had always been very well until about four years ago when she first noticed a slight swelling of the ankles, and a little shortness of breath on exertion. In May this year she had an increase in swelling of the legs, chiefly the left. not painful. Did not feel very bad until about the first of July when the dyspnea became much more marked and she consulted a physician who started her on digitalis. Was in bed for three weeks; improved and was up around until the latter part of September, when she had an attack of acute indigestion, with nausea and vomiting. She was unable to keep food down for several days and she discontinued the digitalis thinking it was responsible for the illness; was taking about 30 drops every three hours previous to this attack. Since this time she had not taken any digitalis. There has been a slight hacking non-productive cough for many years, and at the time of admission was nauseated to the point where a coughing spell would cause vomiting. At times there has been a very small amount of frothy sputum. A few weeks before admission she had had an attack of sharp pain in the epigastrium, associated with the vomiting.

During the past few months she has lost a great deal in strength and thinks she has lost considerable weight. The heart has been irregular for a long time she cannot say just how long but several years.

P. E.: Temp. normal; pulse 140, counted at heart, totally irregular. A large woman who has evidently lost a little weight. The skin is somewhat wrinkled as from loss of subcutaneous fat. Still moderately obese. Lower teeth out except for one broken tooth, nine upper teeth very carious. Tonsils show comedo formation, pus can be expressed from them. They are rather small and scarred. Heart enlarged to the left; totally irregular. There is a suggestive soft systolic murmur to left of sternum, not easily heard at times because of rapid beat. Abdomen is flabby and pendulous. No masses or tenderness. Slight swelling of the right ankle—pitting edema. Diagnosis: Auricular fibrillation, cardiac decompensation.

Patient was in the hospital eighteen days. During that time her heart slowed to between 90 and 100. The pulse deficit which had been up to 70 or 80 dropped to about 10. Digitalis was administered starting with six grains of the extract daily and reducing it to 3 grains daily at time of discharge. The stomach symptoms entirely cleared up under bland diet and mild catharsis. Four teeth were extracted on the tenth day and five on the fourteenth day of her stay. She was discharged in excellent condition on the eighteenth day.

One week later telephone conversation reported her to be feeling better than she had for many months. That night however at 10:30, I was told over the 'phone that she had waked up feling nauseated and had vomited soon after. She was given an enema, but there was no relief and at 3 in the morning she was readmitted to the hospital, complaining of very severe constant pain over the entire abdomen. She had vomited twice, was very weak and in a state of shock. She had groaned continuously with severe pain for several hours. The enema which had been given was returned with a small amount of fecal material

Examination at that time showed a very sick woman with pale face and cold extremities. She was groaning with pain which she indicated to be over the entire abdomen, especially the epigastrium, and the left lower quadrant. Respiration was full and deep but patient wished to be propped up on pillows. Pupils normal. Instead of the total arrhythmia which had been present, the beats were regular for half a minute or so at about 150, then would slow to 80 or 90 and would become very irregular, then speed up again. Pulse very difficult to palpate at the wrist. Abdomen moderately distended and markedly tender in the upper abdomen especially and over the entire abdomen on light pressure.

Impression: Coronary thrombosis and possible mesenteric thrombosis.

At 8 a. m. condition was about the same, no vomiting or nausea. Distention had increased and tenderness seemed more marked. Absence of pain in precordium made coronary thrombosis seem unlikely. Patient's general condition was such that it was considered out of the question to operate for mesenteric thrombosis.

Consultation note by Dr. White in the afternoon was as follows: "Onset about 10:30 p. m. with very severe generalized abdominal pain followed by nausea and vomiting. Pain persistent and partially relieved with morphine. Gradual distention of the abdomen. No bowel movement or passage of gas since taking enema following onset of pain. Rise in temp. this afternoon. Exam. critically ill. Shock. Heart fibrillating and tones poor. Abdomen distended and tender. Impression: Mesenteric embolus. Embolic origin from heart."

9 p. m. Patient seen by Dr. Palmer who concurred in the diagnosis. Patient failing rapidly. Practically pulseless. Over the heart, beats counted 10. Stuporous. Respiration shallow and difficult. Abdomen more distended and tense. Died at 12:30 the next morning.

Autopsy Report by Dr. H. P. Mills

The body is that of a well developed, well nourished female without external wounds or evidence of

injury. The abdomen was greatly distended and there was a large amount of subcutaneous fat. The chest and abdomen were opened.

The lungs were removed, showing no gross pathology and no pleural adhesions. The heart was moderately enlarged. Tricuspid valve much dilated, valve leaflets slightly sclerotic. The ventricle not dilated. Mitral valve showed moderate dilatation. Valve leaflets were greatly thickened but no recent vegetations. Left ventricle walls hypertrophied and muscle was pale in color and abnormally fibrous. Coronary arteries were thickened and somewhat sclerotic. Pulmonary and aortic valves showed no definite change. The entire thoracic and abdominal aorta showed advanced atheromatous lesions, the vessel walls being roughened by calcareous plaques, some of these with roughened and friable margins.

Stomach was dilated but otherwise was negative. The liver was reduced in size and showed evidence of atrophy and fatty degeneration. Kidneys were normal. Spleen was slightly enlarged, mottled in appearance with thickened capsule. On opening the abdomen a large quantity of dark bloody fluid was found in the peritoneal space and the entire small intestine and large bowel except the lower portion of the descending colon and sigmoid were dark in color and some areas almost black and very friable so that in lifting coils of the small bowel, rupture of the wall occurred. The abdominal aorta was opened and the superior mesenteric artery incised. Just proximal to the branching off of the colica media a firm clot was found filling the vessel and extending into this branch and into the more distal branches. Apparently the thrombosis was due to lodgment of fragment of atheromatous material from the aorta.

Anatomical Diagnosis:

Thrombosis, superior mesenteric artery with stasis and beginning necrosis of small intestine.

Extensive arteriosclerosis with degeneration of walls of thoracic and abdominal aorta.

Cardiac hypertrophy with insufficiency of mitral and tricuspid valves.

Chronic myocarditis with fibrosis and coronary sclerosis.

Discussion by Dr. John H. White

The signs and symptoms usually referable to the occurrence of occlusion of the superior mesenteric artery may not be well defined in a given patient. Other sources of information may need to be investigated to verify the possibility of an occlusion being present. An appreciation of the probability of an occlusion having occurred lies, I think, in an understanding of the types of pathology which may give rise to such an occurrence.

The most common source of pathology is the presence of mitral stenosis. The presence of a narrowed mitral orifice, associated with a dilated left auricle with or without the presence of auricular fibrillation, predisposes to the formation of mural thrombi from which an embolus may be broken off and projected into the systemic circulation. Another source of embolism from within the heart arises from the formation of a thrombus in the left ventricle. A thrombus may form in a dilated left ventricle as a result of retardation of blood flow in the ventricle. The presence of a patch of fibrosis on the endocardium of the left ventricle adds to the possibility of the occurrence of a thrombus. Occasionally a thrombus may form in the left ventricle adjacent to an area of necrotic endocardium following a thrombosis of one of the coronary arteries. Acute vegetative endocarditis of the mitral aortic valve may give rise to emboli which may occlude the superior mesenteric artery. Rarely it has been reported that an embolus has arisen in the right auricle and passed into the systemic circulation through a patent foraman ovale and there is one case on record when an embolus has arisen from the pulmonary veins and has been projected into the systemic circulation, in each instance with resultant occlusion of the superior mesenteric artery. The aorta may be a source of emboli which may occlude the superior mesenteric artery. A calcareous plaque may become loosened at the site of a calcareous atheromatous area in the intima or a thrombus may occur in situ at such an area and become loosened forming an embolus. The same types of change may occur in the superior mesenteric artery itself and in addition this artery may become occluded by the occurrence of a dissecting aneurism in the vessel wall. Occasionally, occlusion of the superior mesenteric artery may occur from an embolus which has broken off from a thrombus in an aortic aneurism.

In this patient, the presumption of the presence of mesenteric artery occlusion was helped by the fact that she had a dilated left auricle which was fibrillating and from which it could have been possible for an embolus to have arisen.

It is interesting to note, however, that at autopsy the heart was not the source of the embolus. Apparently the occlusion of the superior mesenteric artery was caused by the formation of a thrombus in situ at the site of a calcareous degenerative area in the intima.

The past history of this patient is interesting in view of the autopsy findings of arteriosclerosis of the superior mesenteric artery. She gave a history of attacks of indigestion occurring at irregular infrequent intervals during the past few years. These attacks were characterized by severe epigastric pain and associated with nausea and vomiting. These attacks lasted a few hours and left her apparently in no worse condition than she had previously been. There has been described a syndrome called intermittent claudication of the superior mesenteric artery which has, as its underlying pathology, arteriosclerosis. This syndrome is characterized by attacks of severe epigastric pain associated with nausea and vomiting, transient upper abdominal distention and constipation. These attacks usually come on several hours after a meal and last for a period of two to three hours. It could very well have been that this patient's attacks of "indigestion" were of the type described as occurring secondary to arteriosclerosis of the superior mesenteric artery.

ACUTE CRANIAL INJURIES
(Case Reports and Discussions)

(Before the monthly Staff Conference of St. Joseph's Hospital, Phoenix, Arizona).

Case Report

Charles N. Ploussard, M.D.

Case No. 18101. Adult white male, age 32. Patient entered hospital on stretcher. unconscious, very restless, continually counting numbers. Respirations labored. Somewhat cyanotic. Bleeding from laceration over left eye, with history of having been in auto accident 45 minutes before admission.

Physical examination:

Head: No hematomas or laceration of scalp. Laceration three inches long to skull over left eye. Pupils equal, regular, react to light. Contracted.

No nuystagmus or strabismus. No bleeding from ears, nose or mouth.

Chest: Heart, no gross pathology; rate 100. Lungs, respirations labored, some mucous rales, probably transmitted from throat.

Abdomen: No distention; no rigidity; no palpable masses.

Extremities: Negative.

Reflexes: No Babinski, Gordon, Oppenheim or Chaddock. K. K. equal and hyperactive. Cremasterics present.

Blood pressure, 1:30 p.m.: 116/78.

Diagnosis: Probable skull fracture. Lacerated eyebrow, left.

Treatment: Eye dressed, patient put to bed, given sedative, restrained. Antitetanic serum, 1500 units.

Progress Notes: Condition of patient did not change much during the first twenty-four hours. Given sodium luminal grains two, hypo as often as necessary to keep patient from being too restless. Blood Pressure readings:

Blood Pressure readings:		Pulse Rate
November 21, 1:30 p. m.	116/78	100
" 2:30 "	134/84	108
" 3:30 "	142/66	105
" 6:30 "	168/108	110
" 8:30 "	150/96	110
November 22, 9:00 a. m.	108/60	106
" 1:00 p. m.	122/82	112
" 6:00 "	130/90	120
November 23, 10:30 a. m.	130/92	110
November 24, 11:00 "	128/84	110

Respiration was labored throughout, but without any indication of Biot's breathing of increased intercranial pressure.

November 22nd. On next day after injury, paralysis developed in left side of body. Lumbar puncture done: 30 c.c. bloody fluid obtained, under only moderately increased pressure. Little change in patient following puncture. Due to his restlessness, it was necessary to give him a small amount of chloroform. At time of puncture, 100 c.c. of 25 per cent salt solution, with 100 c.c. of 50 per cent glucose, were given intravenously.

November 23rd. Lumbar puncture done again, no anesthesia necessary as patient was more quiet: 20 c. c. of bloody fluid obtained under slightly increased pressure. Glucose and hypertonic salt solution again given. Condition seemed to be more or less at a standstill. Ecchymosis around left eye with its clear-cut even line of demarcation is strongly suggestive of basal skull fracture.

November 24th. A. M. Condition not so good. Cyanosis deeper. Pulse rapid but blood pressure remains about the same. Glucose and hypertonic salt solution repeated. Temperature elevation noted as pulse became more rapid and weaker.

5:30 p. m. Cyanosis deeper, pulse imperceptible. Temperature 106 axillary. Respirations 60. Patient expired.

Discussion

J. H. Patterson, M.D.

We have here an adult male coming into the hospital unconscious, with a history of being in an automobile wreck, showing cerebral irritation, numerous contusions and abrasions about the head and body and a laceration over the right eye extending into the scalp hair-line.

X-ray does not show us anything, yet we have indications of a severe concussion and of pressure signs with contracted pupils and left-sided hemiplegia. The spinal fluid shows blood, I believe. With these signs, if there is a fracture, then it is probably at the base and located on the right side. The motor and sensory areas of the right brain are either bruised or there is edema or pressure of this side as indicated by the hemiplegia. This was a late development, making us think of a slow hemorrhage or edema of the brain due to the concussion. If it had been due to a compression fracture of the skull, this would have been gross enough to have shown up on the x-ray plate, I think, and we should have had pressure symptoms sooner.

Daily spinal puncture was done, I believe, although the hospital chart is not very clear or complete on this. His progress sheet is not complete nor are the various consultants explicit on their findings, impressions and treatment advised. Spinal puncture, sodium luminal, glucose and hypertonic saline were given. These are all well recognized steps.

In several cases of skull fracture that have come under my care and where there were pressure symptoms without evidence of compression of fragments (for then of course surgical intervention is indicated), I used the daily spinal puncture as long as there was any pressure at all. Also repeated intravenous injections of hypertonic saline, 80 to 100 c.c. of 20 to 25 per cent. I notice that 50 c.c. of 25 per cent saline was given once in this case. However there was no note of the effect it had, if any. I don't think that in my experience this is quite enough to be given to get any effect. Larger doses of a 20 per cent solution, repeated several times a day, would prove more effective. The effect of this saline is dehydration of the brain and return to normal of the blood chemistry by bringing up the blood chlorides and promoting the better elimination of urea and nonprotein nitrogen by the kidneys. One authority gives magnesium sulphate, 1½ oz. per mouth, 4 or 5 times a day, for the same effect. It is also given intravenously by some.

Glucose 50 per cent is used extensively, but personally I have never seen very much good effect from it. I have seen large doses of calomel given in skull fractures for the purpose of dehydration.

In full-blooded individuals in good health I see no contra-indications to blood letting to bring the blood pressure down to just below normal, thus reducing the intracranial pressure and edema of the brain.

Cushing advocates sub-temporal decompression in all fractures of the base of the skull, decompressing both sides. This procedure he claims is first of all exploratory, disclosing hemorrhage or oozing of any meningeal artery. Also, opening the dura enables us to evacuate any blood clot or fluid causing pressure and which would be a fertile field for bacteria. This prevents any recurrence of pressure after the wound is closed, there being a rubber dam in place if much fluid is present. If there is only edema of the brain, however, this is not necessary.

Urotropin given routinely in fractures of the skull was advised as early as 1909 by Crowe, of Johns Hopkins. He claimed that it rendered the cerebrospinal fluid bactericidal.

An additional aid to any treatment of basal fractures of the skull is putting the paitent in a dark, quiet room, to be kept on a low diet with strict attention to the bowels and kidneys. In addition, any sedative we may like in these cases.

One authority states that, in cases treated expectantly by him, 90 per cent were fatal and in

those in which surgical intervention was used, there was less than 35 per cent mortality.

Most of us look upon surgical intervention in head fractures without gross compression present as rather radical. However, it is done routinely by some of our surgeons.

Case Report

Loren C. Barlow, M.D.

D. M. Age 20. Entered hospital unconscious Jan. 18, 1:30 a. m. History of having been struck by an automobile knocking patient to pavement. Laceration two inches long over right temporal parietal region. Wound was closed with clips and patient sent to room. Pupils fixed. K. K. Present. No. clonus. No Babinski. Was called to see patient eight hours later. He was unconscious, breathing fast and labored. Paralysis of left side of body. Reflexes not indicated on this side. On right side reflexes were hyperactive, with no pathological toe signs. No blood coming from nose, mouth, or ear. Pulse about 70, good volume not thready. Temperature normal. Blood pressure 130/70. It looked so evident that there was certainly some increased pressure on the right side of the brain that immediate operation was advised. Spinal puncture not done. Through a right parietal "Y" shaped incision, the epicranial aponeurosis was incised and elevated. The cranial vault exposed. There was a fracture forming five fragments which were depressed about half an inch, the major portion of the most prominent depression being over the inferior anterior portion of the fissure of Rolando. The fragments were removed and the edges smoothed off with the rongeur forceps. The dura was incised. There was a rupture into the precentral convolution at the site of depression, the brain tissue being slightly lacerated. Exploration did not disclose any bony fragments within the substance of the brain. The terminal portion of the middle meningeal artery was ruptured and spurted into the wound. The ends were ligated and bleeding checked. The convolutoin and fissures were then explored. There was marked edema throughout with multiple petechial hemorrhages through the brain substance, edema and advanced beginning inflammatory reaction; the dura was incised in stellate fashion for decompression purposes and left open. Silk drain was inserted into wound, and wound closed in layers. Scalp wound connected with area directly over fracture. Following the operation the man never regained consciousness and had to be put in a straight jacket, but partial function of left side of body returned. Breathing continued labored, incontinence of feces and urine. He continued in about this codition until the fourth day when he expired.

The temperature steadily went up from the day of operation to 105.8 just before death. Respiration varied from 30 to 40. Blood pressure stayed around 120/70. Pulse from 90 to 120 with a white count on the day of operation of 20,200.

Autopsy: The body is that of a well nourished, very well developed powerful negro male apparently about twenty years of age.

There is a laceration "Y" shaped, in the right temporal parietal region which has been sutured. Palpation reveals no bony structure beneath.

The usual incision was made through the scalp, scalp retracted forward revealing an area free from bone in the right temporal parietal region of about 2 by 3 inches. Calvarium removed in usual manner, revealing no further fractures in the vault. The dura mater was removed, exposing brain substance beneath. In the right parietal lobe there were firm adherent clots as well as loose postmortem clots. About 2 cm. lateral to the longitudinal fissure in this area is an area of softening which when pressed admits the small finger deep into the brain substance. There is contrecoup hemorrhage of the left occipital region. This hemorrhage is fairly extensive and extends into the brain substance about an inch to inch and a half. Hemorrhage occurs for about three to three and a half inches deep into the right parietal lobes just anterior to the fissure of Sylvius. Removal of the dura mater and the remaining portion of the skull reveals thrombosis, firm and adherent, of the right lateral sinus. The middle meningeal artery is in the field and presents evidence of further bleeding. No fracture descernible at the base of the skull.

Anatomical Diagnosis: Excision of temporal parietal section of bone.

Ligation of middle meningeal artery.

Cerebral hemorrhage.

Subdural hemorrhage.

Contrecoup hemorrhage, left occipital region.

Discussion

R. B. Raney, M. D.

We are dealing here with a patient suffering from an acute brain injury, definitely such as manifested by the first symptom, namely shock, with evidence of localized injury from the physical findings of paralysis, on the right motor cortex. Supportive treatment was given during the first few hours, absolute rest and observation for the reactionary period of increasing intracranial pressure before attempting surgical interference. At the end of approximately eight hours the reaction from shock was sufficient to warrant surgical relief of pressure which, from the physical findings, was that of a depressed fracture, intracranial hemorrhage or laceration of brain substance itself. Had this patient been operated earlier, at any time during the phase of shock, there is no question that death would have only been hastened. We might here question the surgical judgment, were we dealing with an operable or an inoperable case. It is very easy for one to take the line of least resistance and say a condition is inoperable. Such logic, in a great many of these decisions, can be classified only as passing the buck to evade mortality. It is very true that a high mortality exists in surgical treatment of acute brain injury and we should either assume the responsibility or refer such cases to a colleague who will. For, even in the face of high mortality in such surgical procedure, a great many lives will be saved and a great many of the dreaded symptoms of headache, paralysis, personality changes, etc. will be avoided. The indications for surgical treatment of acute brain injuries are more readily described by giving the contraindications. The first contraindication for surgical interference is the period of shock. No benefit is gained by any operation with the patient in shock. In fact, the convalescence is made all the more laborious, and patients who survive such an operation at all would have gotten well anyway. At the end of the period of shock, definite inflammatory changes have taken place. The blood pressure which has been low, begins to elevate. The temperature, which has been subnormal, assumes the febrile curve. The pulse, which has been fast and thready and perhaps irregular, slows down to normal and, in a great many cases is markedly subnormal. Respiratory motion assumes shallow and

irregular characteristics even to the extreme Cheyne-Stokes type. It is during the beginning of this period that the greatest benefit can be derived from surgical treatment if indicated. Approximately thirty-three per cent of acute brain injuries are surgical; in the others the pressure can be controlled by spinal puncture, intravenous glucose and hypertonic saline. Hypertonic saline is not fool proof, and should be used rather as a last resort. It is after the stage of shock that x-ray examination should be made as the x-ray findings have no bearing whatsoever on the treatment. If depression, fracture, or whatever the findings may be, are present the treatment should be only that of support during the shock phase. There is a great deal to be said regarding physiological reaction and intracranial hemorrhage of acute brain injury, time will not be taken for discussion in detail, but will only state that no patient dies from pressure of intracranial hemorrhage during the shock period. After shock has subsided, it is up to the attending surgeon to decide whether he is dealing with a surgical condition and the time in which to make that judgment very often is a matter of minutes rather than hours. The patient is at this time in the phase of medullary compression. It may be of the subcortical or intracellular type, or subdural, and may rapidly go into high proportions. It is during this particular phase that the blood pressure elevates and the temperature elevates. Respirations are irregular and shallow and the pulse has a tendency to vary in rate. After we leave this phase we go into the stage of medullary edema with collapse and death. There is a drop in blood pressure, pulse is below normal, respirations are Cheyne-Stokes in character. Temperature rises higher and higher, as high as 110, and the patient dies. This is one phase in which surgery is contraindicated.

The proper time, according to the history and findings of this patient, could hardly have been chosen better. At cranial section through a right subtemporal flap there was a depressed fracture, communinuted in character over the motor cortex, anterior to the midportion of the Rolandic fissure; there was a laceration of cerebral tissue extending through into the lateral ventricle. The midmeningeal artery was ruptured and spurting into the wound; this was ligated, the depressed fragments removed, the dura widely incised in stellate fashion. Silk drainage inserted and wound closed. From the first there was a definite improvement in pressure symptoms even while patient was on the table and if any patient ever had a chance for recovery, no doubt this one did.

Autopsy revealed a laceration into the right ventricle with a profound degree of medullary edema resulting in collapse, paralysis and death. One of these findings alone would have been sufficient to cause death.

GENERAL DISCUSSIION

DR. E. F. HOLMAN, Professor of Surgery, Stanford University:

There is no mention of the pupils. We have been impressed with the importance of the inequality of the pupils, and the observation of the side on which the dilated pupil is. Patients in shock, with a large pupil on one side and a small pupil on the other, present an indication for operation on the side where the large pupil is. It is a very important sign in the early stage. Recall case of a child who fell downstairs, ran home crying, later complained of head hurting, became unconscious with stertorous breathing and was sent to the hospital; it seemed that the child would die any minute, pulse hardly perceptible, rapid and irregular; one pupil was dilated and we operated upon that side, that being the only sign of intracranial pressure; we found a ruptured artery, and the child's life was saved. Rand, of Los Angeles, has observed the same phenomenon, and has observed that occasionally there is muscular weakness or partial paralysis on the same side as the dilated pupil,—which would seem to indicate pressure on the opposite side; however, he thinks the enlarged pupil is a better indication for the side to be operated upon than is the muscular weakness; this weakness in such cases is doubtless due to contrecoup injury to brain tissue. In the last few years we have noticed this sign in five cases. The use of spinal puncture is still open to question. In the Cincinnati General Hospital, where they have many cases of this type, they were at first enthusiastic over the elimination of pressure by spinal puncture; more recently, they are doing fewer and fewer spinal punctures and fewer operations, even in the types of case formerly subjected to operation. The subject is not clearly cut, even at present. There are a few cases with real evidence of intracranial hemorrhage which can be helped. Many have multiple small punctate hemorrhages which will not be helped by operation. Acute cranial injuries are certainly a great problem still. Certainly depressed fractures should always be operated upon. The slight irritation which one gets from depressed fracture may not cause immediate trouble, but two or three years later, petit mal or grand mal may develop, as the result of even small depressed fracture. Penfield of Montreal has suggested that we expose the cortex and remove the injured cortex by light suction with an artificial siphon. Normal brain tissue will not come out but traumatized brain will and with its removal you get less scarring and less contraction of brain substance and therefore less likelihood of epilepsy and other esquelae.

DR. E. R. GASKINS discussed the value of Muck's epinephrine-sound test of the vascomotor reflex of the nasal mucosa in cranial injuries. In this test the inferior turbinates are swabbed with 1:1000 adrenalin and as ischemia takes place a small probe is drawn across the mucosa of the bone. Normally a pink line appears along the track of the probe, but in pathological conditions the opposite effect occurs; that is, a white streak. Several conditions will give this reaction, which is due to a change in the vascular fibres of the cervical sympathetics. It is always found after depressed fractures; it may remain throughout life. He has examined one patient with head fracture and the reaction was very definite and decided. Reaction occurs on same side as the head injury.

DR. E. PAYNE PALMER discussed the importance of limiting fluids in cranial injury, so as to prevent edema. This has been emphasized by Temple Fay of Philadelphia. Even after the patients are up and around, fluids should be limited to prevent epilepsy.

DR. F. J. MILLOY quoted Beasley, of Chicago, to the effect that spinal puncture should not be done after head injuries.

DR. M. I. LEFF inquired as to the reason for this statement of Dr. Beasley's; in his experience spinal puncture had worked like magic in many cases, during his work as industrial surgeon in Old Mexico.

DR. HOLMAN in further discussion, said that many cases return with post-traumatic headache; he again quoted Penfield who treated such cases

often by air injection with the patient in the position which will direct the air to the desired point. Air is injected by the spinal route, after withdrawing fluid.

DR. ROSS said that many patients who do not have skull fracture have symptoms of brain injury without fracture.

DR. RANEY closed the discussion by stating that in treating acute cranial injuries, the fracture is simply an interesting finding. It is not the fracture which is to be treated, but the brain injury, and acute brain injury is frequently sustained without fracture. Oftentimes the fracture is beneficial, acting as a decompression which allows the escape of blood and fluid. An acute lesion of the brain without fracture is more serious than one with fracture; they are to be treated just the same.

CASE DISCUSSION

(Edema Below the Waist with Dehydration Above).

(Case 17041, Case Records of the Mass. Genl. Hosp., N. E. J. of Med., Jan. 22, 1931, p. 168.)

Case Record

Man, fifty-six years old who entered the hospital September 30 last complaining of generalized edema of the abdomen, scrotum and legs of six weeks' duration.

Four years before entry he noticed the onset of progressively increasing constipation. Two years before entry he had epigastric pain, a constant dull pain and occasionally a sharp stabbing radiating pain across the upper abdomen, primary in the right upper quadrant. This came on one to two hours after meals. It was relieved by food and soda and made worse by fatty foods, fruit and vegetables. Crackers relieved it. Seven weeks before entry the pain ceased entirely. Six weeks before entry the edema commenced. At first he noticed it only at night in the ankles, but for four weeks it had been constant and he had noticed pitting up to the abdominal wall. His belt was about four inches too short. He had had progressively increasing dyspnea for four weeks. His doctor said that a year before this he was definitely jaundiced for three months and had clay-colored stools. The man himself did not know this.

The past history was negative except for considerable beer and an occasional whiskey for several years until the advent of prohibition, since when he had taken no alcohol whatever.

Examination showed a well developed thin and dyspneic man. The fundi showed extensive old chorioretinitis. Both diaphragms were high, and there seemed to be signs of fluid at both bases. The position of the apical impulse of the heart was in the 4th interspace 3 centimeters outside the midclavicular line. It was thought that the heart was displaced rather than enlarged. A systolic blow was heard at the aortic area. The blood pressure was 110/75 to 122/80. There was marked ascites and generalized edema of the feet, ankles, arms and legs.

Extensive laboratory studies were made. The urine showed a trace to a large trace of albumin. The sediment showed leukocytes constantly and red cells at 12 of 19 examinations, on three occasions as many as 30 to 40 per field. Occasional hyalin casts were noticed. A two-hour test showed a high fixation of gravity, 1.030 to 1.045. The renal function was 25 per cent. The initial red count was 5,310,000, the hemoglobin 60. After two weeks the red count was 3,200,000, the hemoglobin 35. He was transfused at that time because of the anemia and the low serum protein. This had no effect on the red count. The leukocyte count was at first 15,000; then it jumped to 20,000 and back to 17,000 and 18,000. The sputum was grossly blood tinged. There were no tubercle bacilli. There were several long chains of yeast-like Gram-positive organisms. The basal metabolism was —3, pulse 68, weight 66 kilometers. A Hinton test was negative. The non-protein nitrogen was between 40 and 50. A few days before his death it was 49. The liver function and van den Bergh tests were both normal. The blood fat was 439 milligrams. The serum protein was 4 per cent. We transfused him because of the low serum protein. We thought the raising of the serum protein would be of value. The blood chlorides were 611. The cholester was not done early, but after he had been in the ward about a month. It was 185 milligrams. The uric acid was 4.9.

Chest films taken on admission showed pleurisy of the left base and some fluid. There was nothing on the right. He had carious teeth. Three weeks later chest films were interpreted as probable edema of both lungs and fluid at both bases. An eye consultant said that the fundi gave evidence of congenital lues.

Soon after the patient's entry we tapped his abdomen and got 3 liters of pseudochylous fluid, a cloudy, milky-appearing fluid. The fatty acid was done on this, and was 108 milligrams.

The temperature was normal at first; then it went up to 101° after five days. The pulse went up to 100 and the respirations to 35. There was no particular change in the chest findings at that time. He complained of pain in the left flank high up, almost at the costal margin. There was no rub and the fine crepitant rales he had at entry persisted. After a few days the temperature came down gradually to normal, but only for a week. After the second week there was rather a swinging temperature with an occasional rise to 101°. The pulse climbed steadily after the second week. There was a rub at the right base and fine crepitant rales along with the dullness. We thought he probably had some intrinsic lung infection as well as the fluid shown by x-ray. He became very weak. He was transfused, but this had no effect on the blood and the edema. Finally he lost all appetite. During the last week he was prostrated. He was mentally clear. He was dehydrated in spite of the edema. The upper part of his chest was emaciated. His tongue was very dry and harsh. Edema of the belly persisted throughout his whole stay. A week before his death for one day there was dull constant pain over the precordium, non-radiating. He was not relieved by nitrites. The aortic systolic blow persisted but did not change. Two days before death the temperature suddenly dropped from 102° to 97° by rectum. The pulse climbed from 140 to 150 towards the end. An area of dullness, rales and intense bronchial breathing was noted at both bases. On November 3 he died.

Discussion by Dr. J. M. Greer, Phoenix

The strange thing to me in this case is that after all he had had and all that has been done to him in the way of laboratory work, etc., that he lived as long as he did. Starting four years before this admission at the age of fifty-two with the progressive constipation and two years later the epigastric pain radiating across the upper abdomen and primarily in the upper right quadrant, coming on one to two hours after meals with food, soda and cracker ease would suggest duodenal ulcer. The aggravation by fatty foods and the history of jaundice given by his doctor points toward gallbladder disturbance, and he very probably had gallstones. However, there are other laboratory findings that indicate a disturbance in fat metabolism from some cause or other. In a man of this age malignancy must be thought of and many times as in this case cannot be ruled out. The edema and the progressively increasing dyspnea suggest lung and heart involvement which

must be further looked into. The chlorioretinitis suggests syphilis or some sort of nephritis, and these must be kept in mind as we make our differential diagnosis.

The chest findings suggest long involvement and we shall take their word for it about the heart being displaced rather than enlarged. The ascites and general edema bring us back to the lungs and heart and in the absence of more definite heart findings we are inclined to place the blame upon the lungs. However, in going over the laboratory findings we must concede that nephritis or nephrosis to the extent of considerable damage to the kidney function was present. If we can take the sputum examination as positive for yeast-like organisms, I think we can make a positive diagnosis of fungus infection of the lungs which will account for many of the findings. I do not know whether or not it would produce the anemia present in this case. The rather rapid change in the chest condition as shown in the difference between chest films taken at the time of entrance and three weeks later would indicate some active process in the chest or lungs. With this brief discussion and not having time to go into the disturbance of fat metabolism and absorption, which I hope some one will, I shall make a diagnosis of

1. Fungus infection of the lungs.
2. Nephrosis, bilateral.
3. Anemia, secondary.

Malignancy cannot be ruled out.

Discussion by Dr. Robt. S. Flinn, Phoenix

The presenting symptoms in this case are generalized anasarca of six weeks' duration, severe anemia and low serum protein. Time will not permit of a lengthy discussion of the differential diagnosis. This patient undoubtedly had a nephrosis. Judging by the amount of laboratory work completed the question which the consultants are trying to settle relates to the type of nephrosis. Is this patient suffering from the type of nephrosis described by Volhard in 1914, but now generally referred to as "Epstein"s nephrosis?' Epstein believes nephrosis to be a distinct clinical entity and to be a "metabolic disease" characterized by changes in the protein and lipoid content of the blood serum. He believes further that the water retention and edema are of extrarenal origin and are due to the reduced amount of blood colloid which has caused a lowered osmotic pressure. Starling has shown that the osmotic pressure of the blood proteins amounts to 25 to 30 mm. of mercury. With a reduction of the blood proteins with consequent reduction of this intracapillary force there would be a relative increase in the osmotic pressure exerted by the intercellular fluids. As far as can be learned, Epstein has failed to prove his theory. On the other hand, this theory has not been disproved. Epstein recommends a high protein diet in an effort to restore the lowered blood colloids and thus raise the decreased osmotic pressure.

Typically Epstein's type of nephrosis occurs in young individuals. It is characterized by marked edema with hydrothorax and ascites, large quantities of albumin in the urine with casts but with no red cells, reversal of the usual serum albumin—serum globulin ratio, increase in cholesterol content of the blood, lowered serum protein level, normal non-protein nitrogen, normal blood pressure, low basal metabolic rate and marked secondary anemia. Munk has called attention to the doubly refracting lipoids in the urine and further stresses the luetic origin of the disease.

Since in his opinion the extra renal factors are of prime importance Epstein has given the name "Diabetes albuminuricus" to the disorder. In diabetes the glycosuria is the result of a perversion in the carbohydrate metabolism, so in this disease the albuminuria which is the chief symptom is the result of a perversion in the protein metabolism. Epstein gives large doses of thyroid gland in addition to the high protein diet. I have observed excellent results in two cases of this sort on Epstein's regimen.

As Munk has pointed out, true lipoid nephrosis is an exceedingly rare condition. Christian has never seen, or should I say never recognized, a case of nephrosis in his 20 years of hospital work. It is true that the majority of cases are those of glomerulitis with a superimposed nephrosis. They show in addition to the tubular degeneration a certain amount of glomerular involvement. The case under discussion comes in this group. The marked edema, low serum protein, normal blood pressure, marked anemia are all indicative of this condition. The presence of red blood cells may mean glomerular involvement. The blood cholesterol is normal. The serum protein ratio is not given. We shall expect to see the large white kidney with tubular degeneration. However we shall undoubtedly see a moderately contracted kidney with evidence of glomerular inflammation as well.

Diagnosis:

Lipoid Nephrosis (Volhard-Epstein type) with glomerular involvement.

Hydrothorax, pericardial effusion, ascites, terminal bronchopneumonia (?).

Discussion by Dr. Victor Randolph, Phoenix

Constipation in a man 56 years old is suggestive of obstruction due to malignancy of the large bowel. The symptoms of pain in the right upper quadrant could also be present in such a condition. This pain and the dietary necessities alsu suggest gallbladder disease with stones, especially taken with the three months history of jaundice with clay-colored stools. This, however, could not have been severe, else the patient himself, as well as his physician, would have known it.

The dyspnea is apparently explained by pulmonary edema and pleural effusion, The edema of lower extremities and abdomen when considered with pulmonary edema suggest cardiac failure or abdominal venous obstruction plus pulmonary or pleural infection. There is insufficient evidence to show pulmonary infection. The laboratory examinations draw attention to the kidneys and because of the persistent red cells in the urine we think not only of parenchymatous damage which could be explained by chronic passive congestion but also of renal infection or malignancy. Since symptoms of disease of the large bowel were, at most, only suggestive, and since we have definite findings of renal disease which could also explain part of the symptoms, I eliminate the former and assume that there was nephrosis which may have been secondary to malignancy of the kidney, perhaps the right, since symptoms pointed to the right upper quadrant. In addition I believe there was a chronic cholecystitis probably with cholelithiasis and terminal bronchopneumonia. It seems that the heart must have some part in this picture, but I cannot arrive at any diagnosis other than probable arteriosclerosis of the vessels.

Discussion by Dr. L. C. Barlow, Phoenix

Sharp stabbing pain across upper abdomen relieved by food and soda and made worse by certain foods certainly is indicative of gastric ulcer. Also with history of jaundice and clay-colored stools one year previous one would also have to think of some pathology in the gallbladder. It is frequently true with gallbladder or gastric ulcer that the patient may have increasing constipation. This patient probably had a gastric ulcer which subsequently became malignant. This might account for sudden cessation of pain. Edema of ankle followed by edema

of abdomen with embarrassment of heart producing a generalized edema seems reasonable. Blood in his urine could be accounted for from the same angle. No doubt this man also had some old damage to his kidneys as indicated by his high fixation of gravity of urine (1030 to 1045) and hyaline casts, the chorioretinitis may be due to syphilis, diabetes, myotopia and nephritis. The sputum was grossly blood tinged which is frequent in any condition due to heart failure. The yeast like organisms in sputum are probably secondary invaders and of no importance. Increasing N. P. N. is consistent with failing heart and congested kidney; the uric acid cholestrol and blood chloride were not far from normal. A significant finding is that of a milky appearing fluid withdrawn from the abdomen cavity: this is not an unusual finding, but is occasionally found and when found makes us think of carcinoma or tuberculosis obstructing the chylous flow. No doubt he developed a terminal bronchopneumonia.

Diagnosis:

1. Cancer of stomach secondary to gastric ulcer.
2. Cholecystitis.
3. Chronic nephritis.
4. Terminal bronchopneumonia.

Discussion by Dr. R. C. Cabot, Boston

The history suggests peptic ulcer, but is not conclusive. The pain is more continuous than we expect in peptic ulcer. The patient ought to be entirely free from pain in certain parts of every day.

He had lost weight in spite of all this edema.

We do not find in the examination of the heart any good explanation of this edema. Up to this point I have been assuming that he has the elderly man's heart disease, the hypertensive type of heart disease, but I was evidently wrong.

The range in the specific gravity of the urine certainly cannot be said to be limited in any sense. The only significant limitation of gravity is limitation at a low point. The renal function is perfectly normal. We have no good evidence of nephritis. The case is getting more and more difficult. First it looked like a heart case. Then that was pretty well ruled out. Then it looked like a kidney case. Now it is not at all clearly a kidney case.

The blood fat shows a marked increase. Normally it is 190 to 240.

The serum protein shows a marked decrease. The normal is 6 to 8.

The basal metabolic rate is practically normal. —3 is nothing. So the case cannot be put down to pseudo-edema or myxedema.

The blood chlorides are markedly increased, as they might be in nephritis. I do not know what else except nephritis increases them.

All those chemical tests, I take it, mean that they were thinking of nephrosis because they could not get a clean-cut diagnosis of nephritis. Nephrosis is being studied with a good deal of interest nowadays.

The x-ray shows evidence, I suppose, of fluid in the chest. From the heart shadow we cannot lay this case to heart disease.

The cell count in the ascitic fluid here is of very little significance. It hardly ever has much significance in abdominal fluid. It has some value in chest fluids, but very little in abdominal fluids. This is the sort of fluid we may get in almost any chronic abdominal disease.

When we can feel a friction rub it is very comforting,—then we are sure it is there. If we hear one we are not sure of it. We can feel sonorous and sibilant rales. If you had never felt one at all you might make a mistake. But if you feel a friction once it is there. It seems as if there was evidence of pneumonia and pleurisy or both, as Dr. Holmes led us to anticipate.

We must say infection of the pleura and presumably of the lung, which was the immediate cause of death. I am interested in that long-standing edema. We cannot put it down to any ordinary cause of edema, and that raises the question of nephrosis.

I do not know any other causes for edema than those that I have mentioned and starvation, which of course we do not need to consider here. There are a few cases that I have seen coming from postmortem—I remember two—in which there was a combination of nephritis and nephrosis, so I am prepared for something like that in this case. Nephrosis is believed not to be a disease of the kidneys alone but of those along with other organs as in eclampsia, where there are lesions in the kidney but more particularly in the liver. If this is nephrosis I am prepared to hear Dr. Mallory tell us that there is nephritis also.

Dr. George W. Holmes: The first film shows a definite process at the left base. The diaphragm is rather high on that side. The shadow is not very dense and the heart is not displaced. The heart shadow is fairly well outlined and I think well within normal limits. The supracardiac shadow is perhaps a little increased. The aorta is a little tortuous. I do not think there is sufficient evidence to say the aorta is dilated. There may be some arteriosclerosis. A small amount of fluid in the pleural space or even a collapse of the lower lobe might give that picture.

In the second film there is a good deal of rotation which throws the heart to the right. The diaphragm is very high on both sides and the lung fields are somewhat hidden and blurred by motion. In such a film as this there might be more in the chest than appears. There is some dullness at the left base. There could be fluid behind the high-domed diaghragm.

About all we can say is that there are areas of consolidation without saying what it is due to. Such an area as that might be due to a pneumonic process in the lower lobe. It might be infarct or embolus. There is some involvement of the pleura which one would not expect with a simple embolus.

Clinical Diagnosis—Chronic nephritis.

Dr. Cabot's Diagnoses—Nephrosis with nephritis or X.

Acute pleuritis.

Discussion by Dr. Tracy B. Mallory, Boston

This is a case on which it was certainly very difficult to make a clinical diagnosis that would check up with the various findings. At autopsy we found a number of different diseases which I cannot connect at all. I take it that most or all of them are of separate etiologies, yet each of them played a part in the general picture.

The most obvious lesion anatomically and I think without much question clinically too was the pathology in the kidneys, which clincally had given a suggestive picture of nephrosis. Pathologically we should have to classify it as subacute glomerular nephritis with secondary tubular degeneration. There is an extensive glomerular process, I think primary in spite of the nephrotic symptomatology. It is always dangerous to make a diagnosis of nephrosis in anyone out of childhood unless one does it with the reservation that probably the glomeruli are involved too. I am sure we practically never meet it uncomplicated in adults. Often, however, the secondary nephrotic element may dominate the clinical picture. I think unquestionably that is true here.

We also found cirrhosis of the liver. It is not an extremely marked cirrhosis but a very definite

one. The liver weighs 1600 grams, which is normal in size. It is not atrophic. Histologically I am not able to classify the type. It is consistent with an old alcoholic process; but assuming that his history of not having drunk heavily for the last eight or ten years, but having drunk heavily before that is correct, we could not expect to find the specific type of hyalin degeneration we get in the livers of men who have used alcohol within the last year of life. I should therefore be inclined to think this is an old and quite inactive alcoholic cirrhosis.

The immediate cause of death was totally unexpected. It was a massive pulmonary embolus. In view of the rather slow way in which he gave out, there was nothing to suggest that at all. Both pulmonary arteries were completely filled with clot. In searching for a primary thrombotic focus from which the embolus might have broken loose we found thrombosis of both renal veins. We found nothing in the vena cava, yet I think it is almost certain that there was a thrombus in the vena cava at the level of the renal veins and that it broke entirely loose and caused the pulmonary embolus. The small remnants of clot found in the renal vein were in the distal portions of the vessels. Such a process fits well with the clinical finding of edema in the lower half of the body and dehydration above. At least it would help a great deal to explain the picture. He also had an acute endocarditis of the vegetative type. He had multiple septic infarctions in the lungs and one very sizable abscess. The pleural cavities contained a very small amount of serous fluid at the time of autopsy.

We have three separate diseases which might easily have caused the edema. None of those diagnoses explains very well the very marked and rapidly progressive anemia, which however fits with the bacterial endocarditis.

Anatomic Diagnoses — Subacute glomerular nephritis with tubular degeneration (nephrosis).
Cirrhosis of the liver.
Pulmonary embolus.
Acute endocarditis.
Infarcts of the lungs.
Abscess of the lugn.
Acute pleuritis.
Thrombosis of the renal veins and (probably) of the vena cava.

ARIZONA ANTI-TUBERCULOSIS ASSOCIATION

T. C. CUVELLIER, Executive Secretary, Phoenix, Ariz.

The activities of the Arizona Anti-Tuberculosis Association have been varied and wide in their scope. During the past ten years, especially, the Association has been helpful in establishing many useful agencies dealing with the problem of tuberculosis, child health and sanitation.

The Association has, by demonstration in many communities, proved the value of the community nurse, or public health nurse. and has been successful in having nurses employed in many of the communities as a permanent feature of the public health activities of schools, county and city health offices. At the present time there are over fifty such nurses employed in Arizona, and, as I have said before, many of them are employed as a result of demonstrations and surveys made by our Association.

The Association has conducted an intensive child health educational work throughout the schools of Arizona, reaching thousands of children and as many homes, with a work which can not help but be of tremendous value as a disease prevention and life-saving activity. In this work we have had the whole-hearted cooperation of the school principals and teachers throughout the state. There has always been a demand for our child health educational publications, health charts and booklets dealing with child health. The Modern Health Crusade, a movement designed to promote the observance of daily health chores, has always been popular and is recognized by the school authorities as of great value in securing child health through practice.

This child health educational work has been supplemented by lectures and addresses by our Secretary, and by volunteer workers in many communities who have shown such an interest in this department that they have been ready to serve as assistants. We have found the school teachers and school nurses valuable mediums for the distribution of our propaganda. Much of this has gone beyond the actual reaching of the children and has entered their homes, where good results have been attained in promoting better methods of living and sanitation of homes, thereby serving as a preventative in the spreading of sickness.

The Association, for three years, conducted a preventatorium demonstration, hoping that such an institution might be developed as a permanent feature, supported by public funds. While we were not successful in securing sufficient financial support to warrant the establishing of a full time preventatorium on a large scale, such as we had hoped for, nevertheless the interest awakened by this preventatorium demonstration resulted in the establishing of several small institutions throughout the state where children predisposed to tuberculosis are being cared for under the rules and regulations set down by the propaganda of our Anti-Tuberculosis Association. While from a spectacular standpoint these results have not been as successful as a larger institution might have been, in reality a greater number of children are being given this care through this method than it would have been possible for us to have taken into one single institution calculated to care for the whole problem.

The Association has conducted public health service in practically every city in our state with a population over one thou-

sand. These services were conducted with the help of trained workers and public health nurses, and good reports of same when submitted to the official and volunteer health agencies, in many instances resulted in a movement for better housing conditions and for greater public health and social service provisions for those communities.

It will be of interest to know that all health educational materials and propaganda are supplied by our Association and distributed free of costs. The Association has in stock for distribution, pamphlets and books dealing with the prevention of tuberculosis, and an effort has been made to place these booklets periodically in the homes of all tubercular persons within our state, trusting that by a wider observance of caution on the part of the sick ones, disease may not be spread to children and other members of the families. These same booklets have been printed in Spanish and other languages for the benefit of our foreign-speaking population.

The Association has conducted a relief work whenever called upon to handle cases residing outside of organized territories. The local Associations within the various city limits of the state are prepared in a measure to take care of relief work, but we have a large rural population wihch often looks to the State Association for support or participation in its relief activities.

The Association has been helpful in assisting thousands of cases of tuberculosis to find accommodations within their means. Unfortunately, Arizona is the goal of many migratory tubercular patients who are seeking recovery, and many of them come totally unprepared financially to take care of themselves for any length of time. It has been the aim of the Association to help such cases in securing accommodations which will permit of their funds lasting as long as possible, while at the same time enabling the patients to enjoy the benefits of the climate which attracted them here.

The Association has engaged in a campaign of educational nature in cooperation with the nation-wide campaign launched by the National Tuberculosis Association. While the limited means at our disposal do not permit us to enter as fully into some of these campaigns as we should like to, nevertheless we have put on campaigns urging periodical medical examinations and campaigns stressing the early diagnosis of tuberculosis. These activities have proved of help to thousands of our population.

The Association has participated, in cooperation with other civic agencies, in promoting legislation for sanitation and has been successful in many instances in bringing about a cleaner and safer condition in our public eating and drinking places, as well as in the handling of foodstuffs.

The endless demand for funds with which to meet, if only in part, the great relief problem in Arizona, has made it quite difficult for us in some years, to secure adequate funds to support a work of prevention on a scale on which we should like to conduct it, but this much can be said, that we have conscientiously, with the funds in hand, tried to accomplish as much as possible in each one of the fields of endeavor having to do with the prevention of tuberculosis and in the raising of a healthier and stronger generation of children, who are to be our future citizens.

ANNUAL FINANCIAL STATEMENT
JANUARY 1, 1930 TO DECEMBER 31, 1930

Balance on hand January 1, 1930		$1,585.06
RECEIPTS—		
Sale of Christmas Seals	$6,555.97	
Appeal letters of Mr. Spilsbury	767.00	
Memberships	100.00	
Donations	50.00	
Refund	41.67	
Sale of Printed Matter	1.00	7,515.64
TOTAL		$9,100.70
EXPENDITURES—		
HEALTH AND RELIEF WORK among children and adults, preventorium care for the undernourished, and nutrition class work	$1,741.38	
HEALTH INFORMATION WORK, Guidance for the sick as to where and how to secure suitable care in using existing health centers and sanatoria	580.46	
HEALTH EDUCATION through health centers, lectures, leaflets, exhibits, posters, motion pictures, newspapers, magazines and modern health crusades in public schools	2,205.75	
ASSISTING LOCAL Tuberculosis Societies and Committees to cooperate and to increase the scope of their activities	1,277.02	
NATIONAL ANTI-TUBERCULOSIS ASSOCIATION Seal Sale Supplies	692.12	
SEAL SALE EXPENSES	755.30	
Five Per Cent of Christmas Seal Sale to National Tuberculosis Association	625.91	7,877.94
Balance on Hand December 31, 1930		$1,222.76

CASE OF HEADACHE AND BLINDNESS
(Diagnostic Discussions)

(Case 16511, Case Records of the Mass. Genl. Hosp., from New Eng. Jour. of Med., Dec. 18, 1930, page 1252.)

CASE RECORD

First admission. An American waiter fifty-three years old entered March 7 complaining that he could not see.

A year and a half before admission, just after returning from an automobile vacation trip, and when he was feeling as well as usual, he awoke one night feeling weak, and vomited. He continued to vomit about once an hour for three days. He felt very weak and had, he thought, some fever and at the onset a slight chill. After about a week, when he was feeling better, he noticed that things looked hazy. This became more marked until after a week he could not recognize objects. He had been wearing glasses for eight years and had recently had them changed. His oculist thought the trouble was due to his general condition. He became almost totally blind. Then the vision gradually improved until after eight weeks he was able to return to work, although things still looked hazy. He had occasional morning lacrimation. He remained in this condition until four months before admission, when his vision became progressively worse until two weeks before admission he had to stop work. The morning of admission he awoke with a severe frontoparietal headache. At admission he had vomited six times since morning and had had residual headache from time to time. He gave a vague history of precordial tingling at irregular intervals and of left-sided abdominal tenderness since the onset of the present illness.

The family history is not significant.

He gave a past history of slight edema on exertion and occasional palpitation. He denied venereal disease by symptoms. His history was otherwise negative.

Clinical examination showed an obese, very nervous and hyperesthetic man, able to distinguish fingers only at three feet. A few teeth were carious. The tonsils were large and cryptic. The left showed gross scarring. The left border of supracardiac dullness was 8 centimeters from midsternum, 1 centimeter outside the midclavicular line. The right border was 2 centimeters to the right. The cardiac dullness was 6.5 centimeters. A soft systollic murmur was heard at the base. The pulses and artery walls were normal. There was precordial hyperesthesia. The blood pressure was 115/80. The lungs were normal. The abdomen was very obese, otherwise normal. Rectal examination was negative; no hemorrhoids. The left pupil was greater than the right and slightly irregular. An ophthalmologist found the disc margins slightly blurred but the physiological cups preserved. The discs were not atrophic but were slightly pale temporarily. Neurological examination showed the cranial nerves negative, sensation roughly normal, no ataxia or loss of position sense. The neurologist thought the fundi looked normal. He reported bitemporal hemianopsia. He found all the tendon reflexes equal on both sides and within normal limits of activity. The abdominals were not elicited. Past pointing, touch and temperature sense were intact throughout, also position and vibration sense. Coordination tests were well carried out.

The temperature and respirations were normal. The pulse was 60 to 100.

The question of operation was talked over with the patient's wife. March 17 he went home, to return in a week.

Second admission, March 31.

Examination was as before.

April 5 operation was done. By April 13 the wound was dry and clean, the general condition good and the vision slightly improved on the right. April 27 the patient was discharged, to return in two weeks for a second operation.

His vision remained improved until about May 25. Then it began to fail rapidly.

Third admission, June 4.

June 6 operation was done. That night the temperature and pulse were very high. The patient was clear mentally and the clinical condition good. By June 10 the temperature and pulse were going down to normal and the clinical condition better. On June 13 he complained of a period of dizziness. June 22 he complained of some pain over the left side of his chest and back, not aggravated by respiration. The following morning it was quite severe and worse on motion, so that he was afraid to swallow cold water. The temperature was 99°. The respirations were normal. Physical examination was negative except for rales at both bases at the end of inspiration, more on the left, and a few under the left axilla. By afternoon the pain had become more severe over the precordium. Examination showed cyanosis of the fingers. The chest was as before except for dullness at the bases. The leukoocyte count was 14,000, the pulse 120, the respiration 30, the temperature 100.5°. The abdomen was slightly distended, with questionable enlargement of the liver.

That night when being lifted off the bed pan the patient suddenly began gasping for breath and choking, became very cyanotic and pulseless,, and in three minutes died.

Discussion by J. Madison Greer, M.D.

There seems to be nothing significant in the age, occupation or sex of this individual that would point toward anything in the diagnosis. The awakening at night feeling weak, and vomiting after a vacation trip, are not particularly unusual. I can imagine such a thing even in Arizona if one would return from a vacation trip to the White Mountains sometime along in the latter part of August. One thing we would like to know and that is whether he nauseated before he vomited. The record is silent on this part, therefore we take it that he was not. The continuous hourly vomiting for a period of three days is very significant and in the absence of other signs and symptoms points toward some extreme toxemia or cerebral irritation. The irritation must be either toxic or mechanical and we must look for these. The absence of nausea suggests a mechanical irritation, rather than a toxic one.

The progressive decrease in vision with an improvement in his general condition is a significant factor, and rather discourages the idea of his decrease in vision being a purely toxic affair. The later improvement in vision recorded means an arrest or readjustment of the process whatever it might be. Then the rather sudden frontoparietal headache and vomiting, and we take it again this time without nausea, is significant of some trouble in the cerebrum or cerebellum. I cannot attach much significance to the precordial tingling or left sided abdominal tenderness, without other more definite signs or symptoms referable to the heart or abdomen. The past history of slight edema and palpitation in a fat man, to me is not very significant.

In the clinical examination, there is some cardiac abnormality but it seems to me nothing more than might be found many times in an obese individual of the age of this patient. I do not know the sig-

nificance of the precordial hyperesthesia. The blood pressure is not significant, except that it helps to rule out a hypertension; it could be consistent with many things including intracranial pressure from some cause, provided this intracranial pressure was not brought about suddenly. The inequality of the pupils is a positive sign and must be explained and points toward some reflex or intracranial disturbance. The eyeground findings seem a little indefinite but rather positive nevertheless. The neurologist reports a bitemporal hemianopsia which may be considered consistent with an irritation or pressure along the optic tract and is a focal visional change found many times in tumors in the cranial vault. It would be nice to see an x-ray of this cranium but we are denied this, so must get along the best we can without it.

With the enumeration fo the above mentioned important positive signs and symptoms, headache (bitemporal), vomiting without nausea, gradual visual disturbance with positive pupillary and eyeground findings, with normal or subnormal blood pressure, I shall venture a diagnosis of—

Intracranial Tumor.

This tumor is probably primary and probably a glioma (meningioma).

The operation done was no doubt a unilateral decompression.

The unilateral improvement following this procedure no doubt gave them courage to attempt another decompression on the other side. The high temperature and pulse following the second operation was probably a post operative reaction, mechanical, etc. The patient probably developed a pleuro-pneumonia or hypostatic pneumonia with cardiac embarrassment. The sudden death could have been due to embolism. However, it is not unusual for deaths of this character to follow operative procedures upon the brain.

Discussion by Howell Randolph, M.D.

Symmetrical bitemporal hemianopsia can mean but one thing, interruption of the pathway from the optic disc to the centers of the brain at the point where these fibres are associated in one bundle, as they decussate in the optic chiasma. Hemianopsia with a history of persistent vomiting presumably of the central nervous system type is sufficient to make a diagnosis of tumor of the brain. The localizing symptom placing it adjacent to optic chiasma makes a diagnosis of pituitary tumor most likely. Tumors of the cerebellum, pons or cortex of the brain produce optic disturbances in a very large percentage of the cases. These are usually asymmetrical, and may be very slight. They are most frequently associated with increased intracranial pressure, and choked disc can be observed in well developed lesions.

The other group of signs presented by this patient, those probably having more to do with the fatal outcome, are referable to the heart. Carious teeth and large tonsils showing evidence of a marked chronic infection furnish a portal of entry to possible occasional infections which may have left some mark upon the cardiac muscle. The presence of an enlarged heart and a systolic murmur at the base which was not apparently considered of much importance at the time of examination, together with obesity may have been but precursor evidence of the terminal event. The occurrence of pain over the precordium and around into the left back the day before death was probably the effect of coronary occlusion. A slight leukocytosis and temperature rise together with signs of moisture at the bases might indicate the onset of pneumonia. However the description is not definite for this condition and it seems more likely that a failing heart is responsible for that as well as for enlargement of the liver and distended abdomen. Persistent pain over the left side would be characteristic of pneumonia but sudden death of the patient makes coronary occlusion almost certain.

DIAGNOSIS: Adenoma of hypophysis cerebri. Cause of death, coronary disease, (occlusion); probably embolism.

Discussion by D. R. Gaskins, M.D.

I would like to vary slightly from the discussion of this case and discuss other conditions of nasal origin which could explain some of the symptoms from which this man suffered. I am sure that this case will be amply discussed with the thought foremost for tumors of the pituitary body with pressure on the chiasm resulting in a bitemporal hemianopsia. The neurologist and not the ophthalmologist made the diagnosis of the bitemporal hemianopsia and we are not dismissing the idea that this could have been a lateral scotoma affecting both the bitemporal areas rather than a typical nerve pressure pathology in the chiasm. We must not lose sight of the fact that it is possible to have nasal pathology that would explain this group of symptoms, while the internist is overlooking some other pathology thinking he is dealing with tumors of the pituitary body.

The group I would like to discuss represents those cases presenting positive eye changes and macroscopically negative nasal phenomena. This group, embracing the hyperplastic spheno-ethmoidal conditions, has, until recently, proved difficult to diagnose accurately. The sphenoid and posterior ethmoidal cells are so closely related that pathological conditions affecting this area usually include both groups of sinuses. Anatomical consideration and familiarity with this region is of vital importance. When we pause to think of the structures in close proximity we marvel that more complications do not occur. The posterior-superior and lateral walls of the sphenoid and posterior ethmoids are extremely delicate and to all appearances should easily permit extension of an infection into a neighboring area.

One conception of true hyperplastic spheno-ethmoiditis is one devoid of polypoid formation and pus secretion. It is a situation attended with a marked fibrous increase of the muco-periosteum lining the sinuses. In the course of the pathological changes the glandular elements are likewise involved, showing an increase in fibrous content with marked diminution in glandular structure. No symptom group in my experience is pathognomonic of the hyperplastic type of spheno-ethmoidal sinusitis. While it is true that pain is the most constant and predominant symptom, I have found instances of definite abnormallity in this district without pain. These are the secreting cases of naso-pharyngitis.

The proximity of the spheno-palatine ganglion with its widely distributed fibers has a tendency to increase our difficulties. Sluder, in his excellent works, has clearly shown how pain due to any disturbance of the ganglion may be referred to the frontal, parital and occipital regions as well as to the neck and shoulders. In spite of the pathological changes and existing symptoms, this region presents to the eye of the observer, either directly or by means of the naso-pharyngoscope, changes so slight that it is well-nigh impossible to distinguish from the normal. We have progressed to the point where we can detect hyperplastic changes of the posterior type of the middle turbinate. The existence of this condition arouses our suspicions of

pathological changes in the posterior ethmoidal district. Many times, however, after a most thorough examination, including a careful history, transillumination, direct examination of nasal cavity and posterior pharyngeal space, together with the use of the pharyngoscope, occasionally in conjunction with mild suction, we are reluctantly forced to render a negative report.

With all else negative we are dependent upon the radiologist and ophhthalmologist for further information. The Granger technic is used in all my sinus pictures and the Granger line is carefully studied for any evidence that might indicate to us existing abnormality. Have used this method over a period of year and am becoming more and more convinced that the Granger line is of great diagnostic value.

Pathological conditions existing in the sphenoid and posterior ethmoidal cells, even though indistinguishable to the eye, may so affect the optic nerve that a retro-bulbar neuritis is produced. According to the prevalent theories, this neuritis may be produced by direct absorption of toxins, by edema with stasis and by hyperplasia with pressure. Irrespective of the method of production, but appreciating the importance of an early diagnosis, the ophthalmologist is asked to report particularly on color acuity and changes in the visual field. In a series of cases we have found that those patients upon whom the ophthalmologist has made a diagnosis of diminished color acuity with concentric contraction of the visual fields, usually return from the radiologist with a diagnosis of hyperplastic sphenoiditis. With these two diagnoses, we have found that conservative measures such as shrinking the middle turbinates, or the use of argyrol tampons, mild suction and irrigation are of little value. In these cases a spheno-ethmoidectomy is advised.

In the hyperplastic type, there is no loss of central vision for form, but a greatly reduced threshold for colors (central) red 3 mm. test object, green 5 mm. and blue 7 mm., varying with the severity of the disease from 20 to 98 per cent loss. In this type the periphery often presents concentric contractions down to the tenth meridian central zone for form and colors. These fields simulate those of optic atrophy, and yet they will improve 20 degrees fifteen days following operation and become normal within six months.

With this discussion in mind I would like to offer the diagnosis of hyperplastic sphenoiditis with a complicating localized brain condition, the direct cause of death being subacute endocarditis.

Discussion by R. B. Raney, M.D.

The outstanding symptoms of diagnostic value in this case seem to be headache, vertigo, blindness, which has been progressive in nature for over a period of possibly a year and one half, intermittent vomiting during the headache crises and bitemporal hemianopsia. There is nothing given in the physical examinatioin regarding cardiovascular system other than blood pressure and the cardiac dimensions with a soft systolic murmur which is probably hemic. On neurological examination there is no note made of spinal fluid examination, colloidal gold reaction, Wassermann, cell count, globulin, sugar, etc., all of which would be of considerable help in making a more accurate and positive diagnosis. When in the presence of headache, vertigo, and vomiting in absolute form I would consider it as pathognomonic of central nerve system disease. The history of precordial pain and left sided abdominal tenderness is recorded as vague and not prominent in the picture and to which not much significance can be attached. It might in some way represent a neurogenical entity from central nervous system disease were it manifested prominently, and even under the circumstance in which it has been described. However, I would consider it minimal in importance, possibly anginal in nature or due to pressure from a primary focus.

For a working basis we would have to consider brain tumor. Tumors of the posterior fossa and in particular the subtentorial group almost invariably show marked increase in the intracranial pressure with definite synergic disturbance partly from localization and partly through the increased pressure in and about the rubrospinal system, its cerebellum connectives and most cases give a history of definite unilateral vertigo. Choked disc is prominent, which is not present in this case. Tumors of the frontal lobes are very commonly silent, manifest themselves only late in the disease, and the termination of whcih is usually quite rapid after the initial onset of definite symptoms. Tumors of temporosphenoidal and frontal lobes are about the parietal region manifest definite localizing signs. Tumors of the corpus callosum and basal ganglia localize themselves early in the disease. Early decompression to relieve a great many pressure symptoms that have nothing to do with localization is of paramount importance. Secondly, we must consider infections, syphilis being quite common to a man of this age and could not be ruled out without more definite information. However, there is no note of a Wassermann reaction of either spinal fluid or blood, history of infection, etc. The diagnosis of tuberculous meningitis is made primarily from the spinal fluid findings and the presence of the primary lesion, and the usual symptom complex which this does not simulate. Brain abscess might run a similar course; however sepsis is always quite pronounced and the origin of infection less obscure.

Space does not permit lengthy discussion but in the presence of a three stage operation, the first, considering the complex of three of the cardinal symptoms of brain tumor and the localizing symptom of bitemporal hemianopsia following a history of visual change, only one thing could have been thought of, some definite pressure on the optic tracts, medial and posterior to the chiasma. Pituitary adenoma is the most common. I would presume that the first operation was one of decompression for further study and that the last two consisted of the two stage radical resection of the pituitary body.

Diagnosis: Pituitary adenoma.

Cause of death: hypostatic congestion, pulmonary edema and cardiac faulure.

Discussion by W. W. Watkins, M.D.

One of the first things we are called on to decide, in any diagnostic problem, is whether the patient's chief complaint is an essential symptom. In this case it is. Eighteen months ago this man woke with vomiting and weakness, followed in a few days by failing vision; this improved and remained so for 14 months, then began to fail again, this time accompanied by headache and vomiting.

From the history alone, the amblyopia could be due to ocular disease, systemic poisoning, or intracranial lesion. An oculist ruled out local disease, so we are narrowed down to systemic and intracranial causes.. History gives no reason to suspect drug amblyopia.

Clinical examination practically rules out uremia and other toxic causes for the amblyopia. It gives us some slight changes in optic disc and the bitemporal blindness, to which we will give our main attention.

Each retina is supplied by nerve fibres passing to both sides of the brain; the optic nerve has ex-

(Continued on page 137)

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NEW MEXICO MEDICAL SOCIETY

The annual meeting of the New Mexico Medical Society will be held in Albuquerque, May 20, 21 and 22. Program is being prepared, and the Program Committee announces that a splendid meeting is anticipated. Further announcement, with program will appear in the April issue.

ARIZONA STATE MEDICAL ASSOCIATION

The Scientific Program for the Fortieth Annual Meeting of the Arizona State Medical Association, which is to be held in Nogales, May 7, 8 and 9, is almost complete, but the full details are not available for publication in this issue. Among the important numbers on the program, the following have been assured:

Dr. A. P. Kimball, of Yuma, Ariz., will have a paper on "Special Anesthesia."

Dr. Floyd Sharp, of Phoenix, Ariz., will have a paper on "Birth Injuries."

Dr. Charles William Brown of San Diego, Calif., has accepted invitation to present a paper on "Bronchoscopic Diagnosis and Treatment, Including Foreign Bodies."

Dr. John Homer Woolsey, of the University of California, San Francisco, has accepted invitation to read a paper, and his subject will be "Surgical Problems of Usual and Unusual Gastric Lesions."

Drs. E. Payne Palmer and Dudley Fournier, of the Southwest Clinic, Phoenix, Ariz., will present a paper on "Sodium Amytal Anesthesia."

Dr. C. A. Thomas, of the Thomas-Davis Clinic, Tucson, will have a paper on "Head Injuries."

Dr. R. K. Smith, of the Thomas-Davis Clinic, Tucson, will have a paper on "Prenatal Care."

Dr. Oscar S. Brown, of Winslow, Ariz., will have a paper on "Trachoma."

Dr. John H. White, of the Southwest Clinic, Phoenix, Ariz., will present a paper on "The Healing of Myocardial Infarcts."

Dr. James M. Bisaillon, of Portland, Ore., has accepted invitation to present a paper, and his subject will be "End Results Following Intrapleural Pneumolysis."

Dr. John W. Flinn, of Prescott, Ariz., will have a paper on "Tuberculosis."

Dr. William Lyle Bell, of San Francisco, has been invited and is expected to present a paper on fractures.

Drs. A. M. Tuthill and Norman A. Ross, of Phoenix, will present a joint paper on fractures.

Dr. R. D. Kennedy, of Globe, Ariz., is expected to give demonstrations on the treatment of fractures, similar to those which have become so popular at the American Medical Association meetings.

Three or four additional papers are expected to be added to the final program.

The local committees in Nogales are making extensive preparations for the entertainment of the Association members and visitors. They are anxious to have a heavy attendance. We almost said a "full" attendance, but that hardly seems necessary.

ARIZONA HEALTH ASSOCIATION

The fourth annual meeting of the Arizona Public Health Association will be held at Nogales on May 5 and 6, the two days immediately preceding the meeting of the

State Medical Society, so the health officers may attend both meetings without undue loss of time.

Of particular interest to many of the physicians of the state will be an informal dinner meeting held on May 6, at which time Dr. F. V. Meriweather, specialist of the Industrial Hygiene and Sanitation Bureau of the U. S. Public Health Association, will speak on the industrial hygenic problems of the copper mining industry. All physicians interested in this question are invited to attend the meeting. Tuesday afternoon a clinical and laboratory study of bacillary dysentary will be given by members of the staff of the Desert Sanatorium, Tucson. Meetings will be held Wednesday to discuss public health problems of present interest to health officers in the state. Sections will also be held to discuss water and sewage problems, dairy inspections, and public health nursing.

COOPERATIVE CLINIC TOUR OF EUROPE

There is enclosed in this issue of the journal a leaflet outlining a very unique plan for a cooperative clinic tour of Europe, to start immediately following the American Medical Association in Philadelphia. This tour to be managed by the Travel Guild, Inc., one of the best and most reliable of the touring bureaus. The plan is being sponsored by the State Medical Journals, and complete information regarding it may be secured from this journal or directly from the office of The Travel Guild, Inc., 180 N. Michigan Ave., Chicago.

Several years ago a similar tour was arranged and conducted by this organization for the physicians attending the American Medical Association, and it was highly successful and thoroughly enjoyed by all who participated. The cost is quite reasonable for the accommodations provided, and this opportunity for visiting the historical and clinical centers of Europe is cordially recommended to the subscribers of this journal.

THE DISCOVERY AND THE DISCOVERERS OF X-RAYS

When we read some of the voluminous discussions which appear in the medical literature, we often think of the six hundred word paper of Roentgen, when he appeared before the Physikalisch-medicinischen Gesellschaft of Wurzburg, on December 28, 1895, to announce the discovery of the rays which now bear his name and which revolutionized physics and medicine. As a lesson in clarity and brevity of scientific discussion, and for the sake of introducing another very interesting fact in connection with x-rays, it is presented below:

ON A NEW KIND OF RAYS*

By W. C. Roentgen

(Preliminary Communication)

If the electric discharge from a large Ruhmkorff coil is passed through a Hittorf vacuum tube, or through a sufficiently exhausted Lenard, Crookes, or similar tube, and if the tube is covered with a fairly close-fitting envelope of thin black card, it will be found that a paper screen placed near the apparatus and covered with barium platino-cyanide will become brightly luminous and fluorescent. It is immaterial whether the prepared side or the unprepared side is turned towards the apparatus. The fluorescence is still noticeable at a distance of 2 metres from the apparatus. It is easy to establish that the cause of the fluorescence proceeds from the dischrage tube and from no other part of the electric circuit.

The first remarkable feature about this phenomenon is that we have here an agent that can pass through a black card envelope which is impervious to the visible and ultra-violet rays of the sun or electric arc, and that this agent is capable of producing vivid fluoresence. One was, therefore, led first to investigate whether other bodies possess this peculiarity.

It was soon found that all bodies allow this agent to pass, but in very different degrees. The following examples may be mentioned. Paper has a high degree of transmission[1]: I could see the screen fluoresce distinctly behind a bound book of about one thousand pages; printer's ink offers no noticeable hindrance. Similarly the fluoroscope appeared behind a double pack of cards; a single card held between the apparatus and the screen was almost unnoticeable. A single sheet of tinfoil was likewise scarcely noticeable; only after several sheets had been superimposed could their shadows be clearly seen on the screen. Thick blocks of wood transmit the rays[2]; boards of pine wood 2 to 3 cm. thick absorbed very little. A sheet of aluminum about 15 mm. thick weakened the effect very considerably, but did not cause the fluorescence to disappear entirely. Ebonite plates several centimetres thick allowed some rays to pass. Glass plates of uniform thickness show differences according as the glass contains lead or not, the former (flint glass) being less permeable. If the hand is held between tube and the screen the shadows of the bones show dark against the lighter shadow of the hand. Water, carbon bisulphide and various other liquids proved very permeable when examined in vessels of mica. I could not find that hydrogen was more permeable than air. Fluorescence is still distinctly recognizable behind plates of copper, silver, lead, gold and platinum, but only if the plates are not too thick. A platinum plate of 0.2 mm. thickness is still permeable; silver and copper plates can be thicker. In the case of lead, a plate of 1.5 mm. is practically impenetrable and was often used on account of this quality. A wooden rod of square section (20 by 20 mm.), of which one side is painted white with lead paint, behaved differently accord-

* Translation of a paper read before the Physikalisch-medicinischen Gesellschaft of Wurzburg, on December 28, 1895.

[1] By the "transmission" of a body I mean the relation between the brightness of a fluorescent screen held close behind the object and the brightness shown under precisely smiilar conditions but without the interposition of the body.

[2] For the sake of brevity, I use the term "rays" and more especially "X rays" in order to distinguish them from others.

ing to the manner in which it was held between the apparatus and the screen. The painted surface was almost without effect when the x-rays passed parallel to it, but it threw a dark shadow when they had to pass through it. As in the case of metals, the salts of metals, either as solids or in solution, can be ranged according to their permeability.

The fluorescence of barium platino-cyanide is not the only recognizable effect of the x-rays. Other bodies also fluoresce, as for instance the calcium compounds known as "phosphor"; also uranium glass, ordinary glass, calcspar, rocksalt, etc.

Photographic dry plates are sensitive to x-rays, and this fact is of special importance in many respects. It enables many phenomena to be recorded, thus making it easier to exclude deceptions, and whenever possible I have checked by means of a photographic exposure every more important visual observation on the fluorescent screen.

The other interesting fact and the reason why we say the "discoverers" instead of the "discoverer," is the one to which Dr. A. W. Crane calls attention in The American Journal of Roentgenology for May, 1930, which is also reproduced below:

The first to find the new planet beyond Neptune was C. W. Tombaugh, at the Flagstaff Observatory, Arizona. But the world grants the chief honor of this discovery to a man who has been dead fourteen years. Percival Lowell discovered this planet mathematically, determined its mass and plotted its orbit from the perturbations of its nearest neighbor. But he himself never found it in the heavens. Tombaugh, in the same observatory, working with a more powerful instrument, searched the skies with photographic plates where Lowell's calculations had shown that another planet should be found—and found it. That Neptune had been discovered, eighty-four years earlier, by precisely the same process in no way detracts from Lowell's achievement, and emphasizes the care with which astronomers give honor where honor is due.

This mathematical discovery of a planet preceding its physical discovery has an extraordinry parallel in the discovery of the x-rays. Two years before Roentgen found and demonstrated these rays, another physicist had discovered them mathematically, had specified their properties regarding reflection, refraction and the penetration of substances opaque to visible light, and had indicated their exact position in the spectrum beyond the ultra-violet. This was an achievement of intellect far outranking the calculations of the perturbation of a planet, great as that is. It involved the extension of a marvelous theory, a precision mathematical deduction, a depth of learning and a mental grasp such as only a von Helmholtz could bring to bear. For Helmholtz it was who, in 1893, published his Electro-Magnetic Dispersion Theory of the Spectrum, and provided on purely mathematical grounds the exact space which we now know to be occupied by the Roentgen rays. The final verification came in 1913, when Friedrich and Knipping, under Laue's direction, demonstrated on the photographic plate the nature and place of the x-ray in the spectrum.

We may properly ask why so remarkable an achievement in mathematical theory has not been more generally recognized? What is the difference between physics and astronomy? Has the public discredit of theories affected the scientific mind? Certainly it is with difficulty that any mention of Helmholtz can be found in works on the physics or history of the x-ray.

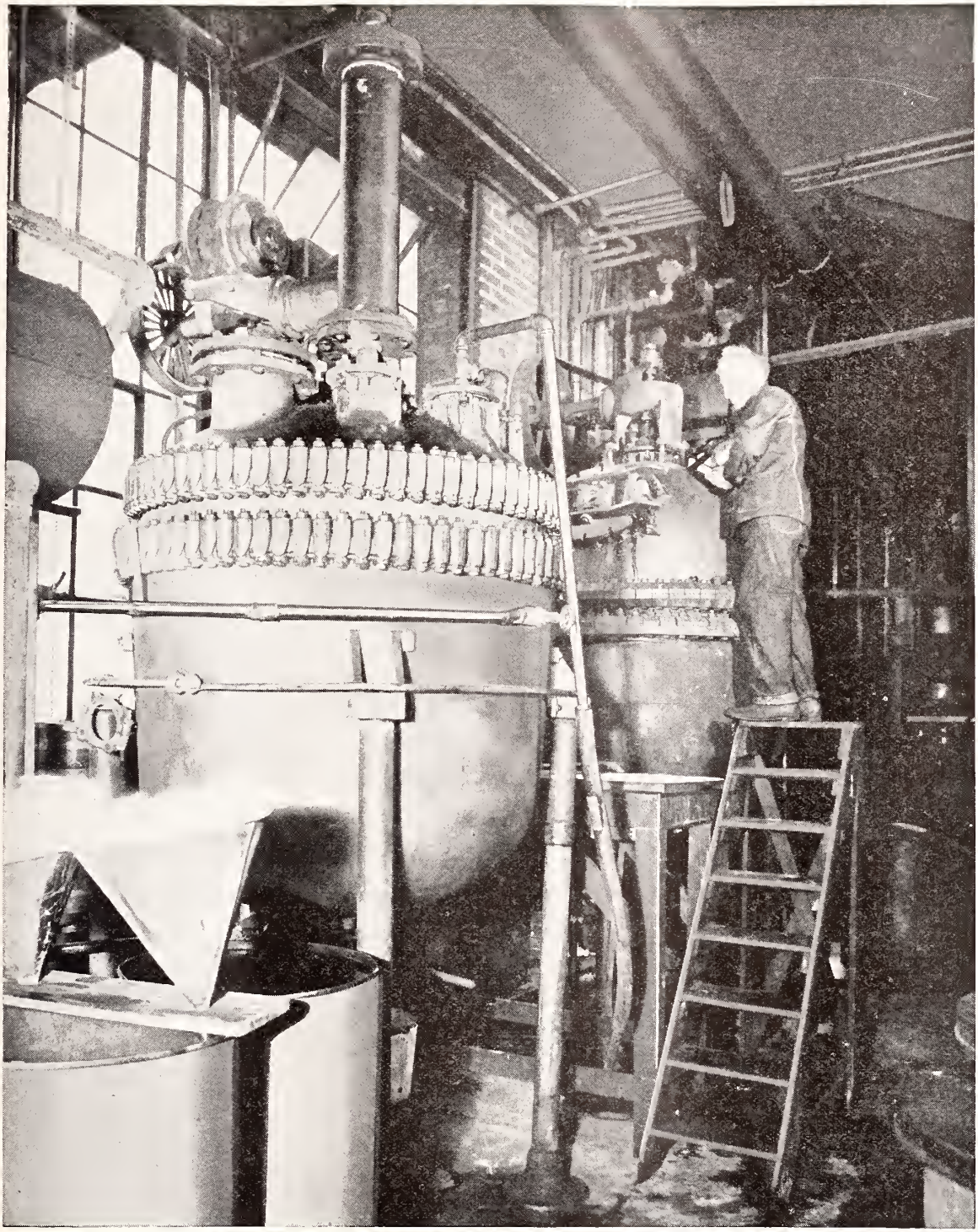
In the first book on the x-ray published in America, The X-ray, or Photography of the Invisible, by William J. Morton, M.D., we find an Appendix C, giving a review of the dispersion theory of von Helmholtz. The original paper of Helmholtz is buried in Vol. xlviii of Wiedmann's Annalen, which, so far as we know, has never been translated into English. Appendix C. is a reprint of an article by Sir Oliver Lodge published in The Electrician, London, England, July 17, 1896, seven months after Roentgen's announcement, and is the source of our information concerning the Helmholtz theory. Lodge is discussing the true nature of the newly discovered rays. In the course of this article, he says: "Taking all these things together, and looking at them in the light of a notable dispersion theory of von Helmholtz to which Prof. J. J. Thompson called attention in the Rede Lecture at Cambridge this year (June 10), it becomes almost certain that the x-rays are simply an extraordinary extension of the spectrum far beyond the ordinary ultra-violet."

Lodge then explains and discusses the Helmholtz dispersion theory in considerable detail, and concludes with this remarkable paragraph:

"Such is a rough account of the theory prepared by the extraordinary genius of von Helmholtz, on purely mathematical and Maxwellian grounds, in 1893, before even the experiments of Lenard, and indeed without any likelihood of an idea that the waves whose theoretical niche was thus provided, were so soon to be practically displayed in the laboratory as an accomplished fact."

This was written by Sir Oliver Lodge seventeen years before the demonstration by Friedrich and Knipping and proved beyond question that x-rays were, in truth, "an extraordinary extension of the spectrum far beyond the ordinary ultra-violet." Here we find another example of theory preceding demonstration. Lane, professor of physics in Munich, theoretically identifying, knowingly or unknowingly, the x-rays of Roentgen with the short-wave lengths of Helmholtz at the extreme end of the spectrum, reasoned that refraction and reflection had not been demonstrated simply because no surface sufficiently smooth and no grating sufficiently fine had been used. To him the theoretical structure of crystals was as real as though he had seen it with the naked eye. He proposed, therefore, that the cleavage plane of certain crystals be used as a perfect reflecting surface, when the atoms would provide the lines of a grating of ultramicroscopic fineness. This was carried out by Friedrich and Knipping, using a crystal of zinc-blend, with the result that the x-ray spectrum was given to the world, and that the x-ray ceased to be an unknown quantity.

Helmholtz's theory, or rather mathematical demonstration, was founded on Maxwell's electro-magnetic theory of light, and embraced the entire spectrum. Not only did it define and place x-rays, but it also provided for wireless or radio waves below the infra-red, and described their power to pass through all ordinary barriers. Helmholtz was more than a mathematician and theoriser. Seven years before the publication of his theory he set one of his pupils, Hertz, at the problem of producing some of these invisible waves in his laboratory to prove Maxwell's conception. Hertz, as the world knows, demonstrated for the first time the wireless waves which have since been known as Hertzian waves. Their practical application by Marconi and de Forest is another story. Lenard, who of all preceding investigators most nearly anticipated Roentgen, was in turn a pupil of Hertz. Thus was the torch handed down from the great physicist, whose influ-



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ence led directly to the discovery of the wireless and to the brink of the x-ray.

Von Helmholtz, long before the time of his dispersion theory, was easily the foremost scientist in Europe. His writings were voluminous, and covered a wide range of subjects. He is best known among medical men for his invention of the ophthalmoscope. He started his career as a physician and surgeon, but later turned to teaching, holding successively the chairs of anatomy and physiology in Berlin, Koenigsberg, Bonn, and Heidelberg. He became distinguished as a physiologist, but even more as a mathematician and physicist, and in 1871 he returned to Berlin as a professor of physics. In 1888 he was made head of the Imperial Physico-Technical Institute at Charlottenburg. He had already been ennobled by the German Emperor. His overwhelming reputation is vividly recounted by Pupin. In 1893, the date of the publication of his dispersion theory, he visited the United States, having been selected as Honorary President of the International Congress of Electricians at the Columbian Exposition in Chicago. His death occurred in August 1894, at Charlottenburg, a year and four months before the discovery of those rays which he so marvelously predicted and described.

It was in this period after 1893 that both Lenard and Roentgen were carrying on their researches. The platino barium cyanide screen which led to the discovery of the x-rays was the chief instrument for the detection of ultra-violet radiations; that is to say, radiations in general beyond the visible spectrum. This fact has been emphasized to show that Roentgen was investigating the presence of invisible rays and that, therefore, his discovery was not an accident. Could Roentgen, a professor of physics, especially interested in the study of the spectrum, have been unaware of the publications of his great confrére, in his native language, on this special subject? We think it possible and probable. A careful reading of Roentgen's original paper announcing the discovery of these new rays contains not a word remotely suggestive of a dispersion theory, and yet Roentgen speculates upon the nature of the rays, and proposes a theory that they are longitudinal vibrations, as distinguished from the transverse vibrations of visible light. It is true that, within a year following Roentgen's announcement, two English scientists, Sir Oliver Lodge and Professor Thomson at Cambridge, in the light of the dispersion theory, came to the conclusion that Helmholtz was right, and that the x-rays of Roentgen lay at the ultra-violet end of the spectrum. But this mathematical theory of Helmholtz was, like the relativity theory of Einstein, understandable only by a select few. Roentgen had no reputation as a great mathematician. He was an investigator, not a theorist. He worked with things rather than ideas. Certainly his lack of acquaintance, or perhaps his undervaluation of the dispersion theory, is less surprising than the silence of other physicists who followed him.

However, unless Sir Oliver Lodge and Sir J. J. Thomson are mistaken, it appears that to Holmholtz belongs the credit for the mathematical discovery of the new planet. The physical discovery of the planet was the direct outcome of the mathematical demonstration. The actual discovery of the x-rays was not the result of any mathematical theory, but a triumph of the experimental method in pure physics. It is no detraction from Roentgen's discovery to recognize the achievement of Helmholtz, and to honor him as the theoretical discoverer of the x-rays. (The American Journal of Roentgenology, May 1930.)

PANORAMIC VIEW OF THE WOMAN'S AUXILIARY TO THE A. M. A. IN FOUR ARTICLES

2. North Central States

MRS. JAMES BLAKE

According to the Constitution and By-laws of the Auxiliary to the American Medical Association the Organization program is carried on by the active work of the vice-presidents. Mrs. Southgate Leigh of Norfolk, Va. is first vice-president and automatically chairman of organization. Due to her location on the map the second vice-president finds herself interested in the destinies of the North Central group of states. Looking backward, with pleasant memories to Detroit, and forward with delightful anticipation to Philadelphia we find this group of states all doing something of common interest.

In the January Journal of the Indiana Medical Society, the Auxiliary president stresses the importance of more constructive work on the part of her organized county groups. "Physicians' wives," she says in her New Year's address, "hold an enviable position in being privileged to have a part in a world-wide health program, and I would urge every physician's wife to bring before other women dependable knowledge, and a just appreciation of the real spirit and purpose and actual achievements of the medical profession." So from Indiana we know we are to have constructive work during this year. Physicians as a class are not prone to participate in legislative matters but when four distinctly separate bills, which affect the profession, directly, are presented during one session of a state's legislature, it is time to be up and doing.

Such is Indiana's situation this year and the doctors of the 7th district have thought it worth while to instruct their Auxiliary members on these subjects that their influence may be properly used. The Indiana Journal never fails to give the Auxiliary space, and it is little wonder the Indiana women are up and coming, when they have such Editorial Notes to enlighten and guide them in their constructive program work, as one finds in this same Journal.

Kansas is slowly getting a few things accomplished. A world wide depression has rendered prophets quite fameless abroad as well as at home, but the doctor's wife in Kansas is coming into her own, and we phrophesy that the Auxiliary will climb to the top due to the indomitable spirit of the leaders in that state.

In Illinois the motto might well read—"Builders we are..and builders we must ever be. Builders, not in stone that shelters life, but builders in life." We find good constructive programs—of well-balanced educational value, we find a Journal ever ready to broadcast Auxiliary news, and best of all we find a healthy organization, line-up, and an advisory board from their Medical Society. Several of their county groups are having their members get busy with the "Health Audit Programs."

One project of worthy mention comes from the Vermillion county on the eastern boundary of the state. The county Auxiliary put on the Health Institute in Danville last November. A member from every agency in the county working out any kind of a health program, was included in the personnel of the speakers. It was for just one day, but it was worth 365 as a rouser for Auxiliary work. It really was sort of a Christmas Seal campaign opening, get-together of club women, and P.T.A. groups

1931

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Write for Bulletin No. 4

The Arlington Chemical Company

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in the county. And what a wise idea for a Medical Auxiliary to have the head lines in the plans for such a "Health Day."

Wisconsin, Iowa and South Dakota are among the latest states to join the National Auxiliary. Organization is the key note for their work, and the National Study Envelopes are offered as program material. Right now if the modern doctor's wife needs to get one thing more than another from her organization, it is the knowledge of what is going on in this world; especially the world of medicine. Women are discriminating more carefully in the clubs they are joining. They are asking what membership will mean to them, what they will get out of it. For that reason the subjects for study should be more carefully chosen, and the roll call should be made to count for something more than jokes and quotations from forgotten poets. It isn't a pleasant feeling for a busy mother who rides miles to a meeting to say when it is all over: "I can't say I know any more now than when I started." And so we find these three states getting themselves scattered far and wide to aid and encourage Auxiliary members, already in, and prospective members.

Montana and North Dakota are debating pro and con but as Mrs. Hoxie said in her Detroit report, "I believe it will be a mistake from now on to organize a new state, unless it appears reasonably certain that there is interest enough among the doctors who want the Auxiliary, so they will foster it and stand back of it." And so we leave Montana half hearted about forming an Auxiliary, and North Dakota in the air.

We find Michigan giving intelligent cooperation with state and county officials. Women like men are interested in the improvement of civic affairs and healthful living and are realizing that they need to be armed with a definite knowledge of health laws and public health practices.

Missouri is in a very healthy condition. We find that Mrs. A. B. McGlothan, the president-elect of the Woman's Auxiliary to the American Medical Association, will attend President Hoover's White House Conference for Child Health and Protection to be held in Washington, D.C., February 19 to 21. Mrs. G. H. Hoxie, the president for last year, will also attend the White House Conference.

Mrs. A. W. McAlester tells us, the women of Missouri are finding the study envelopes, published by the education committee of the Women's Auxiliary to the American Medical Association, most interesting and instructive. The studies on "Common Defects in Children" and on "Diphtheria," "Smallpox" and "Typhoid Fever" were recommended by the Department of Health in the Missouri branch, National Congress of Parents and Teachers for use on Parent Teacher programs. Eight hundred copies of each were requested and supplied for use in Parent Education classes. Requests are constantly coming in for additional copies of the studies for use by teachers and Parent Teacher units. The Department of Public Information of the Extension Division of the University of Missouri is including these studies in its suggested programs for clubs in the Missouri Federation of Women's Clubs, and P.T.A. programs. This department requested back numbers of Hygeia for use in such programs. Three hundred copies of Hygeia were supplied by women in the state and by the circulation manager and are being extensively used in club programs. The Missouri chairman of Public Relations is planning to have a copy of each of the studies "Common Defects in Children" and "Communicable Disease Control" sent to each county school superintendent in the state. Several of the county Auxiliaries are using the study envelopes in their programs.

Mrs. M. P. Overholser of Harrisonville, Mo., has been appointed chairman of Public Relations in the Missouri Auxiliary. This Auxiliary maintains a scholarship for a medical student, per capita quotas being assigned to each county Auxiliary.

They also have sent in 30 per cent of the total number of Hygeia subscriptions recorded from all Auxiliaries from January 1, 1930 to January 1, 1931. Some county Auxiliaries provide Hygeia for all their teachers. Among these are Buchanan, Gentry and Lafayette. Cape Girardeau County Auxiliary has just finished paying a $1000 pledge to a hospital in the city and is now ready for another kind of work. They are a live group and cartainly work hard to be able to accomplish so many wonderful worth while things.

Minnesota, the North Star State, has had a busy and successful year on organization. The president and organization chairman have visited over the state and planned meetings and educational programs with many county groups. In October the International Medical Assembly met in Minneapolis, and at this time the Hennepin County Auxiliary celebrated its twentieth anniversary, by being hostess for five days to the visiting doctors' wives. A great many social affairs and an Educational Day, which included a speaker on Public Health, were features. Hennepin county is having a year with a definite program. Each month a speaker is scheduled, and one meeting during the year is reciprocity day and each Auxiliary in the state is invited to send visitors. This group features philanthropic work for tuberculous patients at Glen Lake and do much for the library at the Sanatorium. They have helped the Medical Society furnish their library and club rooms, spending $1000.

Ramsey county does much the same work. They have a scholarship fund for medical students. St. Louis county is noted for its work in the Public Relations field. The State Medical Journal gives a page to Auxiliary news. One of the other counties takes care of a nurse's scholarship. The Minnesota Auxiliary has a splendid advisory board and a page in the State Journal. The president will be one of the speakers on the program for the Annual Conference of Secretaries of the Component Societies of the Minnesota State Medical Association, to be held in St. Paul the first week in February. This is the first time the Auxiliary has been asked to take part in this annual affair. Mrs. Hesselgraves' talk will be "Uses of the Auxiliary."

And so closing my review of the work of the North Central Group of states may I say again—

Builders we are, and Builders we must ever be;
Builders not in stone that shelters life, but
Builders in life itself—ever remembering the future of the world, for generations to come depend upon what we th'nk and will and do today.

ANNUAL SESSIONS, AMERICAN MEDICAL ASSOCIATION, PHILADELPHIA, JUNE 8 to 12, 1931.

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CASE OF HEADACHE AND BLINDNESS

(Continued from page 129)

ternal fibres from the temporal half of the retina and internal fibres from the nasal half. The external fibres continue along the lateral aspect of the chiasm to the same side of the brain (visual center to occipital lobe). The inner fibres from the nasal half of each retina decussate, or cross in the chiasm to the opposite side of the brain. The chiasm, then, will present in the middle, the fibres from the nasal side of each retina, controlling the temporal fields of vision; laterally in the chiasm are the fibres from the temporal sides of the retinas, controlling the nasal fields of vision. The optic tract has fibres from both eyes, the right tract having fibres from temporal side of right eye and nasal side of left eye; left optic tract the temporal fibres of left eye and nasal fibres of right eye. Do not forget the difference between the fields of vision and the involved portions of retina; a patient blind in the right field of vision will have involvement of the left halves of his retinas, and vice versa.

Hemianopsia means loss of vision in corresponding halves of the visual fields. It varies in type according to the location of the lesion and, when present, is one of the best localizing signs of intracranial lesions.

A lesion in left occipital area, causes blindness in the right half of each eye,—called homonymous hemianopsia,—temporal side of retina on left; nasal side of retina on right. It does not interfere with pupillary reactions to light, being posterior to juncture with nerves controlling pupil.

A lesion anterior to visual center and behind chiasm causes blindness in the same portions but does interfere with pupillary reactions to light on blind portions.

Lesion at the chiasm affects the nasal side of each retina, causing blindness of each temporal half of the eye,—bitemporal hemianopsia;—also there is absence of pupillary reaction.

Bitemporal hemianopsia means blindness on the two temporal sides of the person or the two nasal sides of the retinas, which means that we must have involvement of fibres from the two sides of the brain going to both eyes. The only place we can get this is at the decussation,—so that the bitemporal hemianopsia, unless hysterical,—must mean tumor in pituitary area, or some lesion producing pressure in this area.

We believe they operated for brain tumor in two stages,—and as a pure unadulterated guess, will say that they did not get it removed.

The further course and immediate cause of death was some cardiac complication.

Discussion by Richard C. Cabot, M. D. (Mass. Genl. Hospital). (From Journal above)

We have to look for the causes of eye disturbances which start outside the orbit, those especially germane to internal medicine.

1. Uremia with uremic amaurosis. I remember a boy ten years old who was brought into the ward blind from acute nephritis. After three days' treatment he could see perfectly well. Uremic blindness is suspected to be due to edema of the posterior lobes. Whatever it is, it occurs in acute or less often in chronic nephritis, and it clears up sometimes with treatment.

2. What else outside the orbit gives blindness? Tabes dorsalis with optic atrophy. That is sometimes confined to the optic nerve or is part of a spinal disease. That can be ruled out because of the fact that he was seen by an oculist, who could have recognized such a condition.

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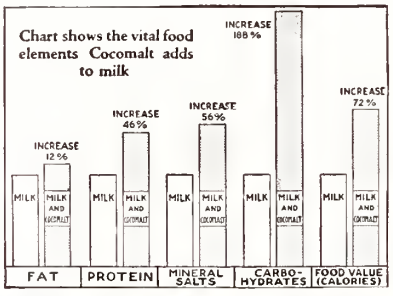

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3. The fact that the vision disappeared and came back three times makes us think of brain tumor, which often causes ocular disturbance. With a careful local examination this ought to manifest itself. If that was done and nothing was found it is very hard to say that the blindness was due to brain tumor.

4. The fourth thing which I remember is ethmoid sepsis working up through the floor of the orbit into the optic nerve, causing various degrees of blindness and blindness that comes and goes.

5. Hysterical blindness, a type seen in shell-shocked men in the war. The eyes were all right, and vision could often be suddenly brought back by appropriate treatment. If you had the right combination he could be cured in a few minutes. If not, he would gradually get well in a few months. That ought to be considered; but the case does not sound like that.

Bitemporal hemianopsia makes us think of a local lesion, probably tumor around the optic chiasm.

Lack of abdominal reflexes makes us think of multiple sclerosis. However, I never heard of a case of that disease beginning with blindness. I do not believe it is that, especially after this careful neurological examination, largely negative. Bitemporal hemianopsia is about all we have.

If they were talking with the patient's wife about operation, they were not talking about operations in general. We ought to hazard a guess as to what operation they were thinking of, and for what. I assume it was for something in the brain. They were not going to operate for uremia or for hysteria or for tabes. The only things I can think of are possibe tumor or ethmoid disease. Against the latter is the fact that we have no evidence so far as I can make out of any acute inflammation. The temperature and pulse are normal. We are not told that he had had bad colds in the head. There is nothing to suggest sinus trouble. Bitemporal hemianopsia does not go with ethmoid disease so far as I know. Brain tumor is therefore the thing most in my mind. I think they made a preoperative diagnosis of cerebral tumor.

Preoperative Diagnosis April 5

Suprasellar tumor.

FIRST OPERATION

A right frontoparietal bone flap was made pretty far forward, of moderate size. The dura was under definite although moderate increase of pressure. The dura was incised at the base of the skull flap and the frontal and parietal loops were retracted towards the midline. The brain was somewhat lacerated. A firm reddish discrete tumor, undoubtedly a meningioma, was seen at the base of the skull in the frontal region, very extensive and having a broad attachment. Only a specimen of the dura could be removed. It was planned to go in at a later date through a frontal approach.

PATHOLOGIC REPORT APRIL 5

Arachnoid fibroma (meningioma).

FURTHER DISCUSSION

That verifies your diagnosis and mine. So far I do not see that we have ruled out metastatic tumor. But it looks big for that.

SECOND OPERATION

A flap of skull was made in the right frontal region, the base being in the midline of the forehead. The frontal bone was drilled just to the right of the midline in two places. These holes were connected with each other and the bone was sawed through to its outer margin. The bone was removed. The dura was under a good deal of pressure. The bone above the supraorbital ridge was rongeured away and the dura was separated from the base of the skull. This was ineffectual and it was necessary to separate the dura from the frontal lobe. On account of pressure it was impossible to retract the frontal lobe to the point where the tumor could be expressed. On this account a portion of the frontal lobes was removed with the high frequency current, first by piercing the brain in several places with a sharp pointed needle and then by using a wire loop. This procedure was carried out twice, eventually exposing the meningioma in the right frontal region at the base of the skull. The tumor was hard, rather flat and had a very broad attachment. It was obviously quite irremovable. On this account only a small portion of it was removed. The dura was left open.

PATHOLOGIC REPORT JUNE 6

Arachnoid fibroma (meningioma).

FURTHER DISCUSSION

All we can do is to hazard some guesses as to the immediate cause of death. The main cause was that

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Will hold its Third Spring Clinical Conference in Dallas, March 30th to April 3rd, 1931.

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1. **Clinics.** The central idea of this tour is an individualized clinic service. It is recognized that the various members of the party will be interested in widely different fields of medicine and will naturally want especially to see the work abroad that is relevant to their official or unofficial specialty.

   Instead, therefore, of mass clinics designed for all to attend, local arrangements will be made to put the doctors in contact with the clinics that particularly interest them. Each is asked, in registering for the tour, to indicate his special field of work and even to mention any specified clinics enroute that he particularly wants to see. The various offices and representatives of the International Travel Guild will then make arrangements in advance for his special benefit. This is a new departure in the operation of clinic tours.

2. **Auspices and Leadership.** The State Journals are known, the world over, to represent the fundamental units of the American Medical Association. Their sponsorship of this tour is a guarantee to foreign clinicians of the authenticity of the tour and importance of its membership.

   For the social and clinical leadership of the tour, a man of established reputation in the profession in America will be invited to act as chairman. The advance arrangements in Europe are being supervised by one who has already had wide experience in this work. The forthcoming tour booklet will of course describe the plans for the tour in detail.

3. **Prices.** The tour is genuinely cooperative, and is offered at specially low rates as a service to the membership of the state societies. The tour can be bought at the advertised price **only** through the participating State Journals or direct from the Travel Guild. Compare this tour and its price with any other of the same length, run by a reputable company, using cabin class on the ocean and strictly A-grade hotels on land. It will be found that, quite apart from its clinic features, the price is astonishingly low.

4. **Travel Options.** Just as this tour is unique in its individualized clinic service, it offers also the most interesting choices in transportation on land. At the basal price of $895, transportation is by rail. But those who wish may make the whole tour by de luxe private automobile (Hispano-Suiza, Rolls-Royce, Minerva) at prices based upon two, three, four, five or six in a car. Since there is regular air-plane service covering almost the whole route of this tour, an opportunity is also given to a limited number to make practically the whole journey by air. For list of prices see the tour booklet that will be sent on request.

5. **Sightseeing.** This is not to be **merely** a clinic tour. The Travel Guild will furnish, on this tour, the complete sightseeing programs offered on their best grades of tours but with hours adjusted so as to interfere as little as possible with scheduled clinics. This phase of the tour is described in outline on the following page. The idea is to give the doctors and their friends **all** that they would get in a best standard tour **plus** an individual clinic service of the highest type.

Itinerary

THE meeting of the American Medical Association in Philadelphia is practically finished on the afternoon of June 11. Those who take this cooperative tour to Europe may leave Philadelphia at 6:14 that evening, arrive in Montreal at 7:20 the next morning and proceed to the S. S. "Montclare" which sails at 10 A. M.

June 12 Sail on the S. S. "Montclare" of the Canadian Pacific Line.

June 20 Due to arrive at Liverpool. By rail through Central England to London.

June 21-27 **LONDON,** the capital of the World's greatest Empire. Here one whole week is spent. Local sightseeing program in the city and a one day trip through the Shakespeare Country by motor. Also arrangements for clinics at many famous metropolitan hospitals. London is one of the great medical centers of Europe with institutions devoted to most of the chief specialties of medicine.

June 27 By night service to The Hague.

June 28 **THE HAGUE.** The sightseeing here will include the Peace Palace, Maurice House, the House in the Woods, and Scheveningen on the sea. Chief among the clinics here is that of Prof. Jan Shoemaker.
By afternoon train to Amsterdam.

June 29 **AMSTERDAM.** Standard sightseeing drive around the city and an excursion by boat to the picturesque Isle of Marken, Volendam, etc. Visits will be made here to the public and university clinics.

June 30 By fast train through northern Germany to Berlin.

July 1-4 **BERLIN,** capital of the newest republic among the Great Powers. A full day of sightseeing in the city by motor and a one day excursion by motor and steamer to Potsdam to see the "New Palace" of the last Kaiser and Frederick the Great's "Sans Souci" palace and gardens. Some of the most famous clinics in Europe are in Berlin in connection with which Dr. Bier and Dr. Sauerbruck are doubtless the best known.

July 5 By rail to Leipzig.

July 6 **LEIPZIG.** Motor tour around the city, including a visit to the massive battle monument, and inspection of the clinics of the University of Leipzig, one of the largest in Europe.

July 7 By morning train to **DRESDEN.** A motor tour of the city and visit to the Zwinger art gallery containing Raphael's "Sistine Madonna," the world's most famous painting.

July 8 By rail to Prague.

July 9 **PRAGUE,** capital of ancient Bohemia. A very interesting city sightseeing program including the Hradcany, the old citadel. Visits will be made to the clinics of both the German and Czech Universities and to the Rockefeller Institution here.

July 10-14 **VIENNA,** the Mecca of all clinicians. Arrangements at the University and the general hospitals of the city under the auspices of the American Medical Association of Vienna. Also a very interesting sightseeing tour in the city and excursions out of town to the beautiful old imperial palace at Schoenbrunn and to the heights of Cobenzl.

July 15 By rail to Munich via the Danube valley and Linz.

July 16-18 **MUNICH,** famous for its beer! An interesting program of city sightseeing and entree to the great clinics of the city and the university. It is here that Dr. Sauerbruck made his reputation.

July 19 By rail to Zurich via Lindau and Lake Constance, home port of the Zeppelins.

July 20 **ZURICH,** seat of the largest university in Switzerland and the country's chief medical school.
By afternoon train to Lucerne.

July 21 **LUCERNE,** most popular of tourist cities in Switzerland. The principal interest here is in the beauty and charm of the city and the trips into the neighboring mountains. An excursion is made by steamer the whole length of the lake to Fluelen and return.

July 22 By rail over the Brunig Pass and through Interlaken to Berne.

July 23 **BERNE,** the capital of Switzerland. Visit the clinics made famous by Dr. Kocher and Dr. DeQuervain.

July 24 By rail to Paris.

July 25-30 **PARIS,** the most attractive tourist city in the world. Here again general sightseeing interests are fairly coordinate with clinical opportunities. Full sightseeing programs in the city and to Malmaison and the great Palaces at Versailles. Among clinics those of the University of Paris and the American Hospital are most widely known.

July 31 By rail to Cherbourg and sail on the S. S. "Montrose."

August 8 Due to arrive at Montreal.

Those who wish to return to New York or on any subsequent sailing either to Montreal or New York may do so providing berths are available at the time of booking.

The price, which is only $895, includes minimum rate cabin class (the best class on the ship) in each direction, strictly A-grade hotels throughout Europe, all rail transportation, transfers to and from hotels, railroad stations, steamship docks, etc., handling of a stated amount of luggage, and all sightseeing arrangements, entrance fees and clinic programs.

A special booklet has been prepared setting forth in detail the plans and arrangements for this first cooperative clinic tour. Fill out the following form and send it at once to the editor of this journal or to the Travel Guild, Inc., 180 N. Michigan Avenue, Chicago.

_____1931

Dear Sir:—

I am interested in the Cooperative Clinic Tour for 1931. I belong to the_____State Society. My specialty is_____.

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The Robinson Neuro-psychiatric Clinic—formerly the G. Wilse Robinson Sanitarium—has been in continuous existence for almost forty years, since first founded by Dr. John Punton. From this long experience, we find, that individual treatment and institutional care are the only logical approaches to the cure of the mentally afflicted.

These cases respond to proper therapy, as do other clinical conditions. Our results in all types—as we will show below are highly gratifying.

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Our treatment consists of sedatives and psycho-therapy, with strychnine and alkalies as adjuncts.

The differential diagnosis from other conditions, is essential, as toxic psychoses, which closely resemble this condition, must be recognized early, and treated drastically or, the patient will be permanently injured.

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Internist

meningioma which has been described. He had not had cardiac symptoms at all before operation. The heart was little if at all enlarged. A systolic murmur is nothing to make us suspect heart disease. Could he have had a postoperative pulmonary embolism? The last lines sound like that. I suppose one can get that even with a fairly normal heart, though one looks for it especially when the heart has been weakened and diseased previous to operation. Could he have had a pneumonia? It does not sound like it. We cannot rule it out, because we can have pneumonia with no more signs than we have here. We have sudden death and sudden cyanosis in a man who does not seem extremely sick before that. It sounds more like some accident, pulmonary embolism being the first thing to think of. There are some slight indications that his heart was failing before this terminal event,—dullness at the bases, rales and high pulse. The pain I do not understand. We do not expect pain in pneumonia and pulmonary embolism. Can these terminal events have anything to do with another tumor of which perhaps the one mentioned is a metastasis? I take it that the surgeon did not believe it to be metastasis; he took it to be primary in the meninges, and doubtless he was right.

CLINICAL DIAGNOSES (From Hospital Record)

Olfactory groove meningioma.

Pulmonary embolus.

DR. RICHARD C. CABOT'S DIAGNOSES

Meningioma of the olfactory groove.

Pulmonary embolism, or possibly pneumonia.

Discussed by Tracy B. Mallory, M.D.
Mass. Genl. Hospital

(From journal above.)

This man of course had a brain tumor. That was proved at operation,—a tumor arising from the meninges beneath the frontal lobe, a rather unusual location for a so-called meningioma. The majority lie over the temporal or frontal lobes. This was underneath. These tumors are always considered benign because they practically never metastasize and they almost never invade the brain. On the other hand they do very frequently invade the neighboring bones. There have been two cases in this hospital since I have been here where a house officer in the Outpatient Department started to remove a tumor, presumably a wen, underneath the scalp and found the tumor to be attached to the skull. Biopsies and subsequent operation proved them to be meningiomas. One does not ordinarily do brain surgery in the Outpatient Department, but only extremely good x-rays can prevent such mistakes. This tumor had involved the orbital plate, so that its removal was I am quite sure impossible.

The immediate cause of death was a massive pulmonary embolus. The cause of the pain in the chest and the cyanosis for a few hours preceding death was also pulmonary embolism. There were two medium-sized emboli which caused infarcts, one in the right middle lobe, the other in the left lower lobe. Pulmonary emboli are more commonly multiple than they are usually given credit for being. Quite frequently the development of an infarct in the lung is good warning to us to be on the watch for a larger pulmonary embolus. Now that major pulmonary emboli have been removed a few times successfully, anything which might lead one to be prepared for the emergency is well worth paying attention to. And in this case we have a very suggestive history.

ANATOMIC DIAGNOSES

Meningioma of the olfactory groove.

Pulmonary embolus.

Infarcts of the lungs.

ST. JOSEPH'S HOSPITAL FOR INTERNS

The acceptance, by the Council on Medical Education and Hospitals of the American Medical Association, of St. Joseph's Hospital at Phoenix for giving the fifth year in medicine to interns, is the culmination of many years' development. The rigid requirements of the Council are difficult to meet and place a great responsibility upon any institution which attempts to give the necessary training to interns sent there for clinical training required in the fifth year. The hospital is to be congratulated on meeting these requirements and becoming the first hospital in the Southwest to be accepted for intern training. It is not yet known where the intern or interns will come from in June, but the hospital will be prepared to receive them, with the necessary residential quarters, library for study and curriculum of training by the staff.

SITUATIONS WANTED

WANTED—Salaried appointments for Class A Physicians in all branches of the Medical Profession. Let us put you in touch with the best man for your opening. Our nation-wide connections enable us to give superior service. Aznoes National Physicians' Exchange, 30 North Michigan, Chicago. Established 1896. Member The Chicago Association of Commerce.

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The St. Louis Clinics will give a two weeks Post-graduate Course and Clinical Conference, June 15 to 26.

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NEWS ITEMS

THE THIRD INTERNATIONAL CONGRESS OF RADIOLOGY will meet in Paris from July 26th to 31st of the present year. This Congress is a triennial gathering and is a very comprehensive meeting, at which all the new developments in radiology and allied sciences are brought before the members by the outstanding men from all parts of the world. The official delegates from the United States are Dr. Albert Soiland, representing the Section on Radiology of the American Medical Association; Dr. James T. Case, representing the American College of Radiology; Dr. Douglas Quick, representing the American Radium Society; Dr. George E. Pfahler, representing the American Roentgen Ray Sosiety; and Dr. E. C. Ernst, representing the Radiological Society of North America. Further information may be secured by any one interested, from the Chairman of this Delegation, Dr. Albert Soiland, 1407 S. Hope St., Los Angeles, Calif.

THE AMERICAN PUBLIC HEALTH ASSOCIATION will hold its Sixtieth Annual Meeting in Montreal, September 14 to 17 of this year. The Windsor Hotel wlil be the headquarters. This Association is one of the large national gatherings, and attracts attendance not alone from the public health workers, but from the medical profession generally.

INDEXES FOR 1930, for this journal, may be secured by any one who desires a copy, by addressing the A. C. Taylor Printing Company, 121 E. Jefferson St., Phoenix, Ariz.

ST. JOSEPH'S HOSPITAL STAFF

Regular Meeting, February 9, 1931

St. Joseph's Hospital Staff was called to order promptly at nine o'clock, Monday evening, Feb. 9th, with an attendance of 50 members of Regular Staff, 3 members of Visiting Staff, and 17 visitors.

Minutes of the previous staff meeting and report from the Executive Committee were read.

The Hospital Analysis for month of January was read by the secretary, showing 366 admissions during the month, 30 deaths and nine autopsies.

Staff conference program had been arranged by Dr. Frank J. Milloy, of the Executive Committee, as follows:

Case No. 21141, death following Mesenteric Thrombosis, was presented by Dr. Howell Randolph, with lantern slide illustrations of electrocardiograms. Discussion of the case was by Dr. J. H. White, and autopsy findings were presented by Dr. H. P. Mills, pathologist for the hospital. Case presentation, discussion and autopsy reported are appended hereto as part of the records.

Case No. 21664, head injury with depressed skull fracture was presented by Dr. L. C. Barlow,—discussion attached. Main discussion was presented by Dr. R. D. Raney. This case brought forth a generous discussion of acute cranial injuries and method of handling them.

Dr. E. R. Holman, professor of surgery, Stanford University, a visitor, was asked to take part in the discussion, and contributed some valuable points from his experience. Other participants in the discussion were Drs. Gaskins, Milloy, Leff, E. P. Palmer, Ross, their questions and comments being answered by Drs. Raney and Holman. Summary of these discussions is appended at the close of Dr. Raney's main discussion.

W. W. WATKINS,
Secretary.

Providence Hospital

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EL PASO COUNTY SOCIETY AND EL PASO HOSPITALS ELECT OFFICERS

The newly elected officers of the El Paso County Medical Society, for the current year are as follows:

President, Dr. J. W. Laws.

Vice-President, Dr. S. A. Schuster.

Secretary-Treasurer, Dr. Ralph Homan.

Censors, Drs. W. W. Waite (1930), G. Werley (1929), S. D. Swope (1928).

Delegates to the Texas State Medical Association, Drs. R. L. Ramey and T. J. McCamant; Alternates, Drs. F. P. Miller and R. B. Homan.

Librarian, Dr. F. C. Goodwin.

Associate Editor, Dr. James J. Gorman.

Members of Board of Managers of Southwestern Medicine, Drs. Paul Gallagher and W. L. Brown.

Delegate to American Society for the Advancement of Science, Dr. E. C. Prentiss.

Milk Committee, Drs. J. A. Rawlings, P. A. Black, Mattie I. Hill, C. F. Rennick and R. H. Geer.

The Staff Officers of the City-County Hospital are as follows:

President, Dr. W. R. Jamieson.

Vice-President, Dr. S. H. Newman.

Secretary-Treasurer, Dr. Sherrod Mengle.

Efficiency Committee, Drs. T. J. McCamant, J. E. Morrison and James J. Gorman.

The Staff Officers of the Hotel Dieu are the following:

President, Dr. G. Werley.

Vice-President, Dr. E. W. Rheinheimer.

Secretary-Treasurer, Dr. Bloyce Blanton.

Efficiency Committee, Drs. James J. Gorman (chairman), Willis W. Waite and H. H. Varner.

THIRD CONGRESS OF THE PAN-AMERICAN MEDICAL ASSOCIATION

Mexico City, Mexico, July 26-31, 1931

The Organization Committee of the Third Congress of the Pan American Medical Association has made a cordial invitation to those who are interested in medical interchange among English, Spanish, French and Portugese speaking doctors of Pan-America for our next meeting which will be held at the City of Mexico from the 26th to the 31st of July 1931, under the auspices of the Government of the Republic of Mexico.

This Medical conference meets for the purpose of maintaining and promoting a more intimate understanding between the medical men of the New World, and with the efforts of many prominent North and Latin American Physicians, a great success has been accomplished in the past meetings.

The proceedings of these Congresses reveal a record of achievements so necessary for the better scientific knowledge among our countries, and a definite step toward International Medical progress.

Mexico, though so close to home and filled to bursting with the things we like to see and to enjoy-beauty, history, gayety, novelty, hospitality—is too little known by Americans. There is much in Mexico that fulfills every wish of those who travel for pleasure and diversion but also for those interested in Educational, Public Health and Scientific institutions.

Information can be obtained from:

Dr. Francisco de P. Miranda. Executive Sec. of the Organization Committee. Departamento de Salubridad Publica. Mexico City, Mexico.

Dr. Conrad Berens. Treasurer Pan-American Medical Association. 35 E. 70th St., New York, N. Y.

Dr. Jose E. Lopez-Silvero. Executive Secretary of the Pan-American Medical Association. Secretaria de Sanidad y Beneficencia, Habana, Cuba.

"Stone walls do not a prison make,

Nor iron bars a cage."

Winter is a jailer who shuts us all in from the fullest vitamin D value of sunlight. The baby becomes virtually a prisoner, in several senses: First of all, meterologic observations prove that winter sunshine in most sections of the country averages 10 to 50 per cent less than summer sunshine. Secondly, the quality of the available sunshine is inferior due to the greater distance of the sun from the earth altering the angle of the sun's rays. Again, the hour of the day has an important bearing: At 8:30 A. M. there is an average loss of over 31%, and at 3:30 P. M., over 21%.

Furthermore, at this season, the mother is likely to bundle her baby to keep it warm, shutting out the sun from Baby's skin; and in turning the carriage away from the wind, she may also turn the child's face away from the sun.

Moreover, as Dr. Alfred F. Hess has pointed out, "it has never been determined whether the skin of individuals varies in its content or ergosterol" (synthesized by the sun's rays into vitamin D) "or, again, whether this factor is equally distributed throughout the surface of the body."

While neither Mead's Viosterol in Oil 250 D nor Mead's 10 D Cod Liver Oil with Viosterol constitutes a substitute for sunshine, they do offer an effective, controllable supplement especially important because the only natural foodstuff that contains appreciable quantities of vitamin D is egg-yolk. Unlike winter sunshine, the vitamin D value of Mead's antiricketic products does not vary from day to day or from hour to hour.

Dear Reader:

Southwestern Medicine and the Cooperative Medical Advertising Bureau of Chicago maintain a Service Department to answer inquiries from you about pharmaceuticals, surgical instruments and other manufactured products, such as soaps, clothing, automobiles, etc., which you may need in your home, office, sanitarium or hospital.

We invite and urge you to use this Service. It is free to you.

The Cooperative Bureau is equipped with catalogs and price lists of manufacturers, and can supply you information by return mail.

Perhaps you want a certain kind of instrument which is not advertised in Southwestern Medicine, and do not know where to secure it; or do not know where to obtain some automobile supplies you need. This Service Bureau will give you the information.

Whenever possible, the goods will be advertised in our pages; but if they are not, we urge you to ask Southwestern Medicine about them, or write direct to the Cooperative Medical Advertising Bureau, 535 N. Dearborn St., Chicago, Illinois.

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Is Diathermy Indispensable to Your Practice?

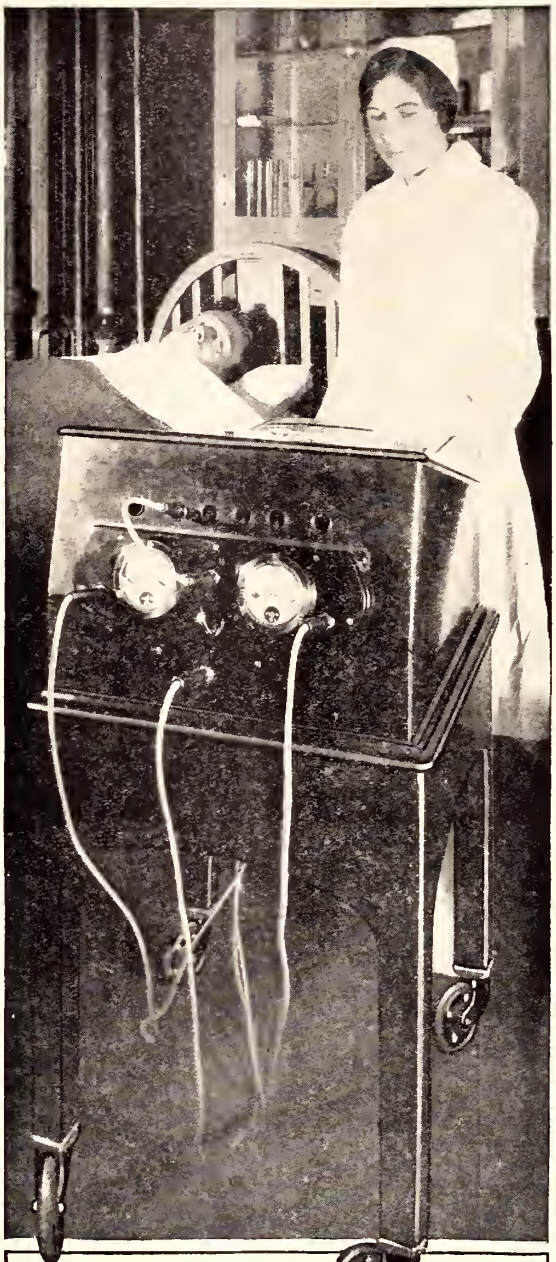
THOUSANDS of physicians who are using diathermy diligently in the treatment of various conditions, answer the above question in the affirmative. They base their opinion on actual experience with efficient apparatus intelligently applied.

The present wide use of and interest in medical and surgical diathermy is unprecedented. Physicians have come to a full appreciation of this form of energy as a means of producing heat for therapeutic purposes within any part of the body. Its surgical applications are recognized by well-known surgeons as of importance.

Now, diathermy is being used also for the production of therapeutic fever, *i. e.*, creating general temperature rise within the body, under absolute control and without danger of injury. In fact, it is considered paramount in the treatment of a number of conditions where artificial fever is indicated.

As to the need for diathermy in some phases of your individual practice, this must be left for you to determine. Our *abstract service* will possibly help you in a review of authentic literature on the subject. Your request for information incurs no obligation.

A Victor Vario-Frequency Diathermy Apparatus, through its scientific design, will enable you to apply this energy in a thoroughly practical and efficient way. This organization, having manufactured electro-medical apparatus for 35 years, is your assurance of a machine of major calibre, that will meet the most critical requirements, be it in the clinic or office.



Showing diathermy used for producing therapeutic fever in the treatment of dementia paralytica. Photo courtesy Northwestern University Medical School, Neurological Clinic, Chicago.

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Arizona Public Health Association, Nogales - - - - - May 5 and 6
Arizona State Medical Association, Nogales - - - - - May 7, 8 and 9
New Mexico State Medical Society, Albuquerque - May 20, 21 and 22

SOUTHWESTERN MEDICINE

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Volume XV April 1931 No. 4

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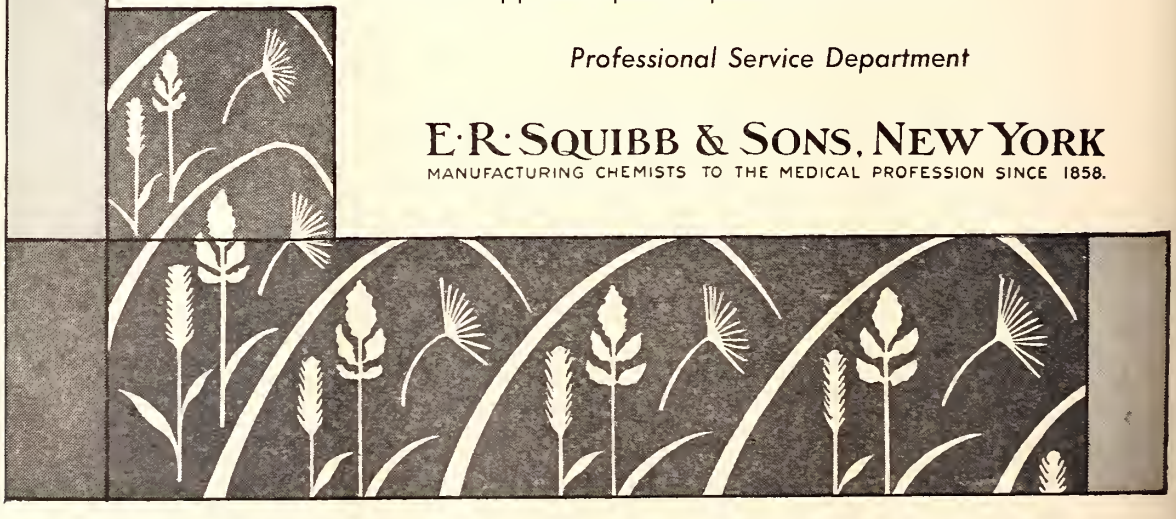

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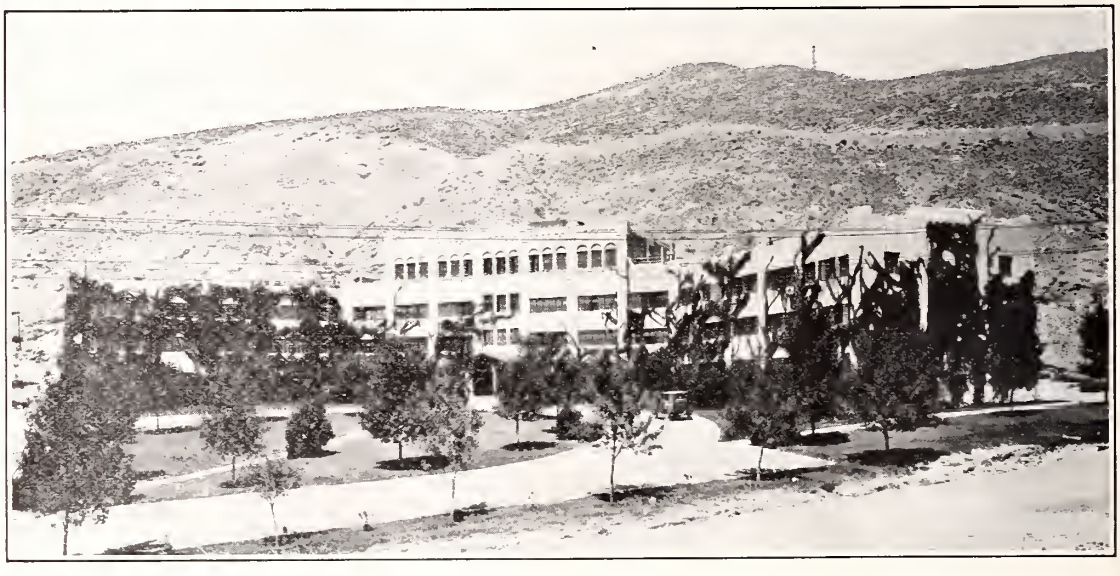

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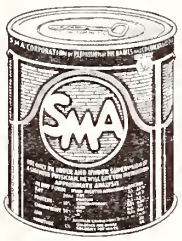

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FRACTURES AS SEEN BY THE GENERAL SURGEON

JIM CAMP, M. D.
Pecos, Texas

(Read before the Sixteenth Annual Meeting of the Medical and Surgical Association of the Southwest, held at El Paso, Texas, Nov. 6-8, 1930).

Fractures have failed to receive the attention to which their gravity entitles them. They are the cause of much primary suffering and disability, and of much partial disability or reduced earning power, due to the poor results that are obtained in their healing. There are a number of reasons for this lack of understanding.

In the first place, it is a trait of human nature to give more attention to the things that come to our notice suddenly, than to those observed over a longer period of time. Fractures have been common since the birth of the race. Because of the deformity and disability they produce, they were necessarily recognized and treated in some manner, and the fact that they have been known and treated for such a long time has prevented their receiving the attention which the newer and more dramatic subjects—such as surgery of the abdomen, the thorax, and the glandular system—have attracted.

Then, too, fractures are most common in the laboring class, because their occupations expose them to the conditions that tend to cause fractures. This class has little with which to pay the expenses of care and treatment, and proper treatment is irksome and requires much time and attention to detail. Consequently, there is very little in the way of financial lure to attract the best talent in the profession to devote its time to this branch of surgery; therefore, a great portion of it falls to the general surgeon, and there are many other branches of general surgery which are less irksome and more remunerative, so the work is not attractive. Since the advent of compensation insurance in the industries of the country, it is to be hoped that the above condition will be remedied, but to date the insurance companies have not had time to analyze results and learn what the expense of poor results is, and, in their desire to economize, they defeat their own purpose.

In recent years, some of the larger clinics and hospitals have tried to standardize the treatment of fractures, and have succeeded to a very great extent in reducing the morbidity from these injuries, especially where they handle the cases themselves. But fractures vary so much in character, and accompanying injuries modify their treatment to such an extent, that a standard comprehensive technic cannot be written. Much mechanical apparatus has been produced with the idea of making the treatment of fractures easy. This is of great advantage, but the average surgeon cannot have all these things at hand; however, he can improvise something that will do the work.

In the study of fractures, it is necessary to take into consideration a number of features. So far as the fracture itself is concerned, the principles of treatment are well established, and consist of traction in the case of long bones to overcome the natural tendency of the muscles to produce overriding and angulation, together with pressure and position to overcome displacement of the fragments. If it were not for the care of the soft parts and joints, it seems that the problem would be very simple, but when they are taken into consideration it becomes very complex. And it is just as important that the surrounding or concomitant

injuries and surrounding parts be properly cared for as it is to restore the contour and length of the injured bone. For example, in our over-zealous effort to hold the broken fragments in proper position, we sometimes produce a useless member, as in Volkmann's contracture following fracture of the forearm; or a stiff elbow with the forearm and hand in a position of almost complete uselessness, in fractures near that joint; or, in fractures of the thigh, where the knee joint is so badly damaged that the leg is of very little use after the fracture is healed.

Fractures of the present day differ greatly, in character and in the amount of other injury, from those of a few years ago, owing to the general change in occupation and transportation. A large per cent of modern day fractures are produced by modern machinery in its operation, by the handling of heavy objects which fall with crushing or mutilating force, or by falls from rapidly-moving vehicles. Owing to the above factors, they differ widely in character from the injuries that we were accustomed to see a few years ago, in that they are more often compound and comminuted, and accompanied by more shock and general injury.

To meet the changed conditions in a general way, and to avoid the sequela referred to above, it is necessary to treat these injuries on general surgical principles, with a view to restoring the best possible function to the injured limb. This in a large per cent of cases, means an honest effort to procure a perfect, or as nearly perfect as possible, anatomic result, because a study of the results in a large number of fractures has proved that in probably ninety per cent of cases a good anatomcial result will also give a good functional result, and vice versa. To illustrate our viewpoint, we will take a few examples of common fracture. The old Pott's fracture that was so common in the days of the cowhand and when the horse and buggy were in use, is now replaced by fracture of the leg, or, more often, of the thigh, and with much more general injury. A fracture of the forearm on the order of Colles' is still very common, but is not so common now since automobiles are started with electric starters instead of the hand crank which was used a few years ago; but again the poor fellow who drives a second-hand wreck without a starter is often the victim.

In treatment of the fractures of the lower extremity, we have used a large number of methods. With those below the knee, we have used the old board splint with the end extending below the foot for the purpose of providing a point from which to make traction to produce inversion of the foot, in cases where that is needed; the moulded wire splint; the circular plaster of paris; and the plaster of paris moulded splint. For those about the ankle, on the order of the Pott's fracture, we now prefer the moulded plaster of paris splint, commonly known as Stimson's splint, except that I prefer the lateral splint on the inner side of leg, and prefer to pad my splints with several thicknesses of gauze instead of covering the whole leg with sheet wadding. In the thigh, we began with the old Buck's extension, which I must say was very good in the majority of simple fractures of the femur, but had many failings. Then we used the plaster of paris spica; then the Thomas splint, with its many modifications and imitations. With the Thomas and other similar apparatus, it is necessary to combine skin traction or skeletal traction, both of which have their advantages and disadvantages. The skin traction has the disadvantage of being inadequate in many cases, and in a majority of cases the knee must be put up in straight position, which is often the cause of a bad knee joint in the end. Skeletal traction gives a fixed point from which to make tractions and at the same time allows the knee to be placed in any position most desirable, and allows motion at the knee. It has its disadvantage in that it often produces pain after a number of days or weeks in position, and has the theoretic disadvantage of exposing the patient to infection through the points of insertion of the traction instruments. This is not altogether theoretical, as a surgeon told me only a short time ago of losing the life of a patient through infection from this source. Taking it altogether in the large majority of cases of simple fracture of the femur, it is my opinion that, for me at least, a plaster of paris spica extending from the border of the ribs to the base of the toes on the injured side, and to the knee on the uninjured side, will give the best results in a large per cent of cases. Of course it is necessary to be very careful to replace the fragments accurately. Then, by placing the knee in semi-flexion and the thigh in such degree of flexion and abduction as to relax the muscles, you make retention easier and give better purchase for the plaster to maintain traction. The disadvantages are that it is difficult to hold the fragments in accurate position while applying the cast, and when the x-ray shows that you have been successful in holding them unitl the plaster dries, they will sometimes become displaced later and you have wasted a lot of energy and gone to some expense. But when this

method is successful, your patient does not require the trained attendance that is required with other methods, and may often be cared for at home at greatly reduced cost. Whatever method is chosen, you must persevere and make such modifications or changes in plans as the individual case demands.

In fractures of the upper extremity, near the wrist, in the Colles' type, the greatest number of bad results come from a lack of complete reduction of the fragments and a failure to place the limb in a position of sufficient over-correction to maintain the proper position. Most fractures of this character, if completely reduced and put up in a position of over-correction, will give almost perfect results, even in extreme old age. Fractures of the radius and ulna have been among the most difficult with which I have come in contact, because of the difficulty in getting a complete anatomical reduction of both bones at the same time, and maintaining them in such position that there will not be an impingement of one bone upon the other in such a way as to interfere with pronation and supination. In the case of oblique fractures of these bones, extension and retention are very difficult. Extension can be maintained by construction of a frame to extend from hte shoulder to beyond the tips of the fingers, with the arm and froearm at right angles. The vertical portion of the frame rests against the arm for countertraction. Traction straps are attached to the end of the frame, and adhesive to the forearm; or skeletal traction may be used in this position, but it very often requires open reduction for one of both of the bones. This should always be done rather than have a deformity that will interfere greatly with function of the member, but a discussion of the indications for open or closed reduction is out of place at this time.

Among the simpler things that any surgeon can take advantage of, is suspension, either in the lower or upper extremity. This adds a great deal to the comfort of the patient and to the chances of recovery in seriously injured limbs. It is applicable especially in injuries of any portion of the arm or forearm. By putting the patient to bed and suspending the arm from a pulley above the bed you can get rid of the swelling and edema in one that is so badly injured that it appears almost hopeless, and would be hopeless if permitted to remain in a dependent position.

Of course the use of Dakin's solution and other methods of cleansing are well-known in the case of compound fractures. The matter of debridement is a subject that is often debated and is for the individual surgeon to determine for himself.

The use of local anesthetic in the reduction of fractures of the forearm especially, is one of the most useful of modern improvements. It permits manipulation of the fragments without pain and without hurry, provides ample time to check the work by x-ray and continue to manipulate for as long a time as is necessary, with one anesthetic, and without any shock to the patient. Spinal anesthesia in the reduction of fractures of the lower extremity, is very useful, especially in fractures of the femur. It gives complete relaxation of the thigh muscles, allows easy manipulation and more perfect palpation of the fragments to determine their position, and lasts for sufficient length of time to permit the use of fluoroscope for as much time as is necessary. The only disadvantage is that there is such a complete relaxation of the muscles of the thigh in some cases that there is not sufficient tone to retain the ends of the bone in apposition while the dressing is being applied. But, taking it altogether, it is ideal for either closed or open reduction in fractures of the femur.

In closing, I will say that whatever plan or method is undertaken, it requires the exercise of all one's surgical judgment to procure a good result in these very common injuries.

CARCINOMA OF THE LUNGS AND BRONCHI. E. V. Goltz, M.D., St. Paul, Minn. Minn. Med., Sept., 1930, p. 605.

The increase in carcinoma of the lung is not wholly apparent, but there is evidence to show that it is actual. Primary carcinoma of the lungs may arise from the columnar epithelium of the bronchi, from the mucous glands of the bronchi, or from the squamous epithelium of the aveoli. The form arising from the bronchial epithelium vary greatly in size, color and consistency; it may remain as a small local nodule with wide metastases, or it may grow extensively into the lung tissue; sooner or later there is obstruction to bronchus. The type arising from mucous glands is rare and usually limited to the walls and substances of the bronchi. Those arising from the pulmonary alveolar epithelium may be diffuse over a large area, or may be multiple and nodular. Primary carcinoma of the lung is prone to metastasize. A careful history will usually focus attention on the lungs, when physical examination and special examinations by bronchoscope, by x-ray alone or after lipiodol injection will give conclusive evidence. The x-ray examinations should be repeated to observe progress. Therapy by x-ray may relieve pain, but progress of the lesion is hardly ever affected.

BREECH PRESENTATION

M. EDWARD DAVIS, B.S., M.D. F.A.C.S.
From the Department of Obstetrics and Gynecology of the University of Chicago

(Read before the Sixteenth Annual Meeting of the Medical and Surgical Association of the Southwest, held at El Paso, Texas, Nov. 6-8, 1930).

Breech presentation, although occurring in only three per cent of our deliveries, has always been regarded with some concern by the patient and her medical attendant. For the mother it may mean dystocia during labor, with the resultant frequent operative interferences and the damages arising therefrom. For the baby the mortality is distinctly higher, averaging three times that of occipital presentations. Careful prenatal management and proper obstetrical care during labor may do much to improve this fetal mortality and minimize the damages to the mother.

ETIOLOGY

Many factors have been given as favoring breech presentation. The fact that it will occur in a patient with a normal pelvis, normal soft parts and a normal baby, lends little evidence to the majority of the etiological factors. According to Williams, presentation is the result of a process of accommodation between the fetus and its environment. Any condition on the part of the mother or the baby which interferes with this process may favor the breech engaging in the pelvis. The condition occurs in about fifty per cent of cases in multiparae with relaxed abdominal walls and relaxed uterine musculature, thereby providing an unusually roomy environment. For the same reason, twins, polyhydramnion, premature children, often favor breech presentation. A contracted pelvis, particularly of the flat type; congenital anomalies of the uterus, such as a bicornate or biseptate uterus; pelvic new-growths; or a low-lying placenta, by encroaching on the roominess of the inlet of the pelvis or by distorting the intra-uterine cavity, may result in breech presentations. Lastly, monstrosities on the part of the fetus may seriously interfere with normal accommodation.

DIAGNOSIS

There are two main varieties of breech presentation, the complete and the incomplete. In the complete breech the attitude is one of complete flexion, the thighs being flexed on the abdomen and the legs on the thighs. This type is also called "frank breech." The incomplete breech presents some anomaly of flexion, such as a single or double footling, where one or both feet are prolapsed into the vagina, or where one or both feet lie up against the face.

Abdominal examination is most often sufficient to make a diagnosis. The longitudinal ovoid with the hard, regular, ballotable body in the fundus and the soft, yielding, somewhat irregular breech over the inlet, are easily palpable. Ballotement of the head can be obtained only if there is sufficient liquor amnii and if the uterus and abdominal walls relax sufficiently. The location of the heart tones is usually above the umbilicus and on the side of the back. Rectal examination will verify the abdominal diagnosis. Whenever there is doubt, the vaginal examination will reveal the soft, yielding buttocks with the crease between them and the prominent rigid sacrum. One or both feet may be felt alongside the buttocks in the complete breech if there is sufficient dilatation. X-ray examination will show the fetal sketleton but is rarely necessary to establish a diagnosis.

PROGNOSIS

Labor is usually longer in breech than in occipital presentations, with resultant frequent examinations increasing the danger of infection and the high percentage of operative interference increasing the dangers to the mother. The soft breech is a poor dilating wedge, particularly if it is incomplete. This causes poor uterine contractions, incomplete effacement and slow and incomplete dilatation. The poor preparation of the soft parts may result in extensive lacerations to the cervix and the perineal structures when the unmolded hard head is delivered.

Breech presentation is particularly dangerous for the child and 6 to 14 per cent of the babies are lost during labor and the delivery. The cord may prolapse alongside the breech and be compressed. The placenta may separate after the breech has been expelled, interfering with the fetal circulation. Asphyxia during delivery often results because the baby cannot be delivered in the 8 to 15 minutes during which the delivery must be completed after the umbilicus appears at the vulva. Brain hemorrhage and tentorial tears are common causes of fetal death. These are the results of hurried misspent efforts in delivering the aftercoming head through resistant structures. Paralysis of all types and broken bones are not at all uncommon.

TREATMENT

We have found it best to consider the occurrence of breech presentation as abnormal and to seek an etiological factor for its causation in our prenatal examination and the examinations during labor. Because of this view we have insisted on a most complete study of the pelvis, the soft parts and the

baby. Any gross evidences of disproportion between the baby and the passages, any uterine anomaly, pelvic new growth or fetal maldevelopment may thereby be discovered early and its importance during pregnancy and labor properly evaluated.

Breech presentations are common occurrences during the seventh and eighth months of pregnancy. They are most often transitory and are the result of the roomy environment at that time. The majority of these will spontaneously convert themselves to occipital presentations and then remain so during the remaining weeks. If on several bimonthly examinations the breech is found to persist over the inlet, gentle attempts at changing its polarity may be made. External version during pregnancy is not entirely devoid of danger and should be practiced only if the pelvis, soft parts and baby are apparently normal. It can be done without anesthesia and with little discomfort to the patient. The presenting part must not be engaged; the abdominal wall must not be too thick or tense; the uterus must not be too irritable; there must be sufficient liquor amnii. The technic is simple and easily carried out. The breech is gently dislodged from the pelvic inlet, and gently stroked upwards, at the same time pushing the head downwards. When the fetus is brought beyond the transverse position the version has been accomplished, for the head can now be gently led over the pelvic inlet. The fetal heart tones must be auscultated every fifteen degrees the baby is turned for it is our only index that we are not interfering with the circulation. Knots and kinks in the cord and partial placental separation are rare accidents but not too rare to make external version unpopular in some clinics. At any change in the rate and rhythm of the heart tones no further attempts at the version should be made. The head may be pressed into the inlet and encouraged to stay there by postural exercises but it often returns to the fundus.

We do not recommend external version during labor either by the abdominal method of Pinard just described, or by the bi-polar method of Braxton Hicks—using one hand in the vagina. Cephalic version during labor is very unsatisfactory and hazardous to both mother and baby in our experience.

During labor, watchful expectancy should be practised. The accoucheur carefully studies the patient to discover any abnormality or cause for disproportion. Everything being normal, the patient is allowed to labor. The course of the labor is carefully watched and the general condition of the mother guarded. She should be encouraged to take nourishment in the form of easily digestible foods and to take plenty of fluids. When she becomes unusually restless, complains bitterly of her pains and has made some progress, some form of analgesia can be given. We prefer morphine sulphate in 1/6 to 1/4 grain doses with serpolamine 1/150 grain or magnesium sulphate 2 cubic centimeters of 50 per cent solution intramuscularly. The magnesium sulphate may be repeated after twenty or thirty minutes. In cases that are unusually long and drawn out one may give Gwathmey's rectal instillation of quinine and ether in oil. The patient will secure much needed rest, awakening after four or five hours and continuing with her labor. The fetal heart rate should be taken every hour in order to be better informed about the condition of the baby. The passage of meconium in breech deliveries has no significance.

Too often the progress of labor is slow and unsatisfactory. This may be due to the early rupture of the membranes and to the fact that the breech is such a poor dilator. This latter is particularly true in incomplete breeches of a single or double footling. It may be necessary to substitute a hydrostatic bag for the breech. A nine or eleven centimeter Voohees' bag inserted into the cervix, with or without an attached weight, will facilitate the dilatation and effacement. For some years we have practised the insertion of a large colpeurynter into the vagina in labors which are unduly lengthy and in which there is little or no progress. This irritates the cervix, stimulating the labor pains and dilating the vagina and resistant perineal structures. It also has the advantage of not displacing the presenting part. Complete dilatation and effacement of the cervix must be secured before any attempts at delivery can be made.

When the breech begins to descend into the perineum, preparation should be made for delivery and for the care of all emergencies which may arise. Drop ether with pains, or better still, ethelegine of nitrous oxide and oxygen should be given, encouraging the patient to bear down. The relief of some of the pains during the second stage will allow the patient to make the best use of her efforts and often facilitates a rapid and spontaneous outcome. In our clinic at the Chicago Lying-in Hospital, we perform a medio-lateral episiotomy on primiparae who have a resistant pelvic floor or a large baby. This facilitates the delivery, prevents serious perineal lacerations and shortens the second stage of labor.

As the feet and buttocks are delivered they should be carefully wrapped in a sterile towel. When the navel appears, the delivery must be completed within eight or ten minutes. The attendant or assistant should keep his hand on the fundus, following it downward as the buttocks are delivered, thereby preventing the arms from becoming extended above the head. Should there be delay in the spontaneous delivery of the rest of the body, the patient should be promptly anesthetized and the delivery completed. Indeed, many obstetricians feel that "manual aid" or delivery of the shoulders and head, should be routinely performed by the obstetricians under anesthesia to avoid many serious complications which may arise at this stage.

An indication may arise for the termination of labor before the buttocks have spontaneously delivered. The indications for breech extraction on the part of the mother may be weak, ineffective pains, the result of a long tedious labor, heart disease, eclampsia, or placenta praevia; on the part of the baby, asphyxia as is indicated by a slowing or irregularity of the fetal heart rate. Should the indication for prompt delivery arise, then one must have the usual conditions necesary for an instrumental delivery. The cervix must be completely effaced and dilated. There must be no great disproportion between the baby and the passages. The baby must be alive. The membranes must be ruptured. Complete surgical anesthesia should be insisted upon. To force the conditions may defeat the purpose for which the extraction has been undertaken, such as saving the life of the baby.

After the uusal surgical preparation, the patient is catheterized, the vagina thoroughly lubricated with green soap and a careful vaginal examination made to determine the position of the baby. If the feet are still in the uterus, one or, preferably, both feet are to be brought down. If the feet are up against the face, as in the incomplete breech, this may be difficult. The whole hand is introduced into the vagina and the anterior thigh located. The hand is passed up to the knee and when it is pushed away from the midline, the leg will flex sufficiently to grasp the foot. Traction is now made until the foot appears at the vulva. Where it has been impossible to bring down both feet, the traction on the one is continued until the buttocks appear, when traction can be facilitated by hooking a finger in the posterior groin. As the feet are delivered, they are wrapped in a steril towel to provide a better grasp. As the breech comes into view, a better purchase can be obtained by grasping the baby by both thighs, distributing the force equally so as not to injure the child. Gentle but continuous traction is continued downward, always favoring anterior rotation of the back until the lower half of the anterior scapula appears under the symphysis. An assistant should follow the uterus downward as the fetus advances, so as to keep the fundus tightly contracted about the baby to avoid extension of the arms.

Wherever possible we prefer to deliver the anterior shoulder first; however, if the posterior shoulder is more accessible there is no objection to delivering it. The important thing is to deliver the shoulders in situ in the oblique position of the shoulder girdle without rotation. Should the head be above the inlet, as is often the case, rotation of the shoulder girdle may cause an overstretching of the nerves of the neck and a resultant Erb's paralysis. The index and the middle finger of the more adaptable hand are passed up under the pubis over the child's back and down to the elbow. By flexing the two fingers and twisting the wrist, the baby's arm is swept over the chest, down and out. This sweeping motion keeps the arm and forearm in flexion and closely applied to the baby. The baby's body is now lifted upward toward the mother's groin, avoiding too great an angulation, and the posterior shoulder is delivered in the same manner.

The delivery of the aftercoming head is best effected by the method of Celsus-Wiegand-Martin. The hand whose palm applies to the abdomen searches the baby's mouth, two fingers are allowed to rest on the posterior angles of the baby's jaw, the child lying on the forearm. The other hand is placed above the symphysis on the baby's head and, by combined pressure from above and traction from below, the head enters the pelvis obliquely and is rotated anteriorly. The nape of the neck stems under the pubis and the face is delivered over the perineum, keeping the chin well flexed on the chest. As soon as the baby's mouth can be exposed with the aid of a retractor or at the vulva, it can be wiped free of mucus and the baby can inspire air. The delivery need no longer be hurried.

Various complications may arise to interfere with the normal mechanism briefly outlined. When an incomplete breech has descended onto the perineum, the extraction may begin by gently hooking the index finger into the groin of the child and making traction until the buttocks appear at the vulva, when further traction can be facilitat-

ed by hooking the other finger in the posterior groin. When the arm is found extended or around the baby's neck, its extraction may be aided by gently rotating the child in the direction favoring the wiping of the arm across the face. It is then delivered in the usual manner. When the shoulders are impacted it may be wise to push the shoulder girdle above the brim where the arms can be reduced or placed in the transverse diameter. If the umbilical cord is too tight and interferes with traction, it can be cut between clamps.

Delivery of the aftercoming head may offer several variants. Rarely the occiput will rotate posteriorly in spite of all caution. Two fingers of one hand grasp the shoulders from below, while the other hand draws the feet over the abdomen of the mother, stemming the neck under the pubis and causing the occiput to sweep over the perineum. The Prague maneuver often causes extensive maternal lacerations, as it presents the most unfavorable diameters to the pelvis.

Forceps on the aftercoming head are becoming very popular. Their judicious use and proper application will prevent many cerebral hemorrhages, the most frequent cause of fetal death in breech deliveries. Several authorities recommend their use routinely. The Piper forceps have been devised to facilitate the application of forceps on the aftercoming head. Undue pressure on the head from above undoubtedly increases the bi-parietal diameter, frequently ruptures the falx, tearing down the tentorium and forcing the medulla oblongata into the foramen magnum. In our clinic we apply the ordinary DeLee-Simpson forceps to the aftercoming head when safe pressure from above does not result in its prompt delivery.

CONCLUSIONS

Careful prenatal care to determine disproportion, to rule out abnormalities, and to evaluate each case individually, will greatly improve the high fetal mortality that exists in breech deliveries. When the disproportion appears to be too great for delivery from below, where the mother is an elderly primipara and the baby assumes added importance, where fibroids or an ovarian cyst complicate the delivery, one has ample indications for an elective cesarean section, preferably the laparotachelotomy under local anesthesia. The careful management of the patient in labor will do much to insure a successful outcome. Lastly, more babies are lost in breech deliveries as a result of undue hurry and misapplied force than of the limited time available for the deilvery. A careful duplication of the mechanism intended by nature in each individual case, constantly on guard to prevent complications, will do much to improve fetal mortality.

SURGERY IN PULMONARY TUBERCULOSIS

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The failure of routine sanatorium care to achieve favorable results in a large majority of advanced tuberculous patients, after cavity formation, is glaringly reflected by repeated statistics, which show that at least three-fourths of such cases are lost within a span of five years. Hence, the logical trend of modern treatment has been more and more consistently toward collapse therapy for some years with surgical measures playing an increasingly prominent role therein recently; and adequate gratifying experiences have justified the prevailing recognition, by progressive clinicians, of established collapse procedures as an integral graded link in our therapeutic armamentarium against advanced phthisis.

The surgical approaches to the omnipresent disease revolve around the judicious application of the underlying concept of all tuberculo-therapy—rest—locally to the diseased lung in part or toto. The variable degrees of immobilization and collapse obtainable from the various procedures, and the varying response of different patients to the same compression measure under seemingly similar involvements, together with the never-to-be-forgotten fact that tuberculosis is a generalized disease, make the successful solution of this surgical problem a purely individual but often intriguing one, which demands a nicety of judgment and breadth of clinical experience that is equalled in few fields of surgery.

The effort of this presentation is not to offer an exhaustive dissertation on this vast subject but rather to review briefly the practical value of our recognized surgical adjuncts in tuberculosis and to stress the more widely applicable procedures of phrenic-exeresis and extrapleural thoracoplasty, which at present enjoy the greater vogue.

Intercostal neurectomy, paralysis of the parietal respiratory muscles, is a relative innovation in phthisiotherapy of most recent years, that has so far been little used, but is inferentially of very limited value as a minor improving aid in certain retrogressive patients, who are unsuitable for either pneumothorax or thoracoplasty. Its usefulness will be somewhat enhanced if combined with phrenic interruption.

Cavity drainage, by galvano-cautery or the

superior electro-coagulation method, should be considered only for a solitary tuberculous cavity with secondary infection and resultant toxemia, which posterior thoracoplasty and supplementary operations have failed to obliterate. I have used this aid in two such instances with success.

Extrapleural pneumolysis is a method of selective surgical collapse that theoretically appears to offer the solution to many cases with a single cavity of only moderate size in the upper lung, as the chief sequela of the disease; but, in practice, the filling schemes developed to date have so frequently failed to maintain the excellent degree of cavity collapse obtainable at operation, that the measure has been little used independently and scarcely at all in this country. On the Continent, however, it remains the preferred treatment in some clinics for an upper lobe cavity persisting after posterior thoracoplasty, and is thus doubtless of merit, but in my opinion more definite results will usually be obtained on these occasions by supplementary costectomies, provided they are invoked before extensive regenerations and cross-union of ribs have occurred.

My experience with the pneumolysis in fifteen cases (one muscle, three paraffin and eleven gauze tamponades) is that the paraffin method is the best filling scheme, but the operation alone will prove only an improving measure and the indications for its use thus are decidedly restricted.

Intrapleural pneumolysis is an invaluable adjunct in a selected small group of artificial pneumothoraces, where complete pulmonary collapse is prevented by a few string-like or thin membranous adhesions and the attainment of a successful pneumothorax by division of these restraints offers a reasonable prospect of ultimate cure of the disease under this therapy. The well known fact that tuberculous patients do not tolerate pleurotomy at all well makes the division of intrapleural adhesions by "open" operation seldom justified, especially as recent years have witnessed the development of the highly technical but safer and more satisfactory "closed" method, whereby the adhesions are severed with a galvano-cautery or electro-surgical unit under guidance of a thoracoscope.

My experience with this pneumolysis is limited to three open and five closed procedures. The open operations resulted in considerable effusions which required aspirations, and pneumothorax treatment was continued in only one case; the cavity ruptured in one patient with secondary pleural infection and subsequent drainage through the operative incision; while the other case soon developed a tuberculous empyema which nullified further pneumothorax therapy. On the other hand, the five closed cauterizations had a smooth convalescence with inconsequential effusions, and pneumothorax was continued in all of them.

Phrenicectomy, or phrenic-exeresis, the simplest of our operative procedures in tuberculosis, has obviously become the most frequently performed one, but its use has yielded to date a wider range of variable results than any other collapse measure.

The favorable influence of phrenic interruption at times on fibro-caseous lesions in the apical region, is responsible for the prevailing view that the effects of this procedure are largely dependent on complete paralysis or immobilization of the corresponding diaphragm, with its associated pulmonary relaxation and rest, rather than the original concept of compression incident to ascent of the paralyzed muscle, which is of import mostly in basal involvements. This assumption is further substantiated by the physiological fact that mobility at the apex is chiefly dependent on excursions of the diaphragm.

The trophic view advanced in Germany several years ago, that interference with vagus and sympathetic fibers to the lung by phrenic exeresis is responsible for the favorable influence of this operation, may be a factor in our results, but such remains yet to be proved.

One might surmise from the growing enthusiasm for phrenic surgery in some quarters that this measure was fallaciously viewed by a few almost as a surgical panacea in advanced tuberculosis, rather than in its true light of a supplement to other collapse therapy, particularly complete thoracoplasty and artificial pneumothorax in fibro-ulcerative cases.

However, the comparative benignity of phrenicectomy, in the presence of adequate vital capacity, commends its independent use (1) in favorable chronics who need a little more than sanatorium regimen for consistent improvement; (2) as an improving aid in selected patients with too much involvement for thoracoplasty and adhesions preventing artificial pneumothorax; and (3) for the attainment of specific objectives in certain cases, when the more potent procedures of pneumothorax and thoracoplasty are not feasible, viz.: repeated hemoptysis, moderate hemorrhages, distressing diaphragmatic adhesions, and the alleviation of harassing cough in occasional late caes.

My experience with phrenicectomy in tuberculosis comprises 355 patients on

whom this measure was used for the following reasons:

Supplementary to pneumothorax ..... 31 cases
Supplementary to thoracoplasty ..... 68 cases
As an independent procedure .....256 cases
(a) For specific objectives only ..... 81 cases
1—To test status of contralateral lesions....12
2—Hemoptoptyses (15 successful) 21
3—Hemorrhages, small and moderate.....10 (7 successful)
4—Basal adhesions causing distress.....29 (20 relieved)
5—Harassing cough in late cases ..... 9 (5 benefited)
(b) as an "improving" adjunct.....175 cases
Improvement of varying degrees in 70 cases which was marked in 21 cases; 9 patients with solitary cavitation of moderate size and with little associated pulmonary involvement subsequently healed this lesion without other collapse therapy.

Extrapleural thoracoplasty is the outstanding contribution of surgery in tuberculosis, but its far-reaching possibilities are just beginning to dawn on the profession. Being our most influential surgical procedure, and the only one that accomplishes collapse of an entire lung analogous to pneumothorax, the requirements for thoracoplasty are the most exacting in collapse therapy, and the selection of suitable subjects is its paramount issue.

It is deemed superfluous to delve into the fundamentals relative to indications for this operative measure before this assembly, so for the sake of brevity we will simply enumerate the prime requisites in their order of importance. The triumvirate of (1) contralateral lung, (2) extent of fibrosis and (3) cardiac reserve, must be evaluated in a most painstaking manner when this intervention is contemplated; while almost as essential for correlative information are the sedimentation test and vital capacity. The latter two determinations are so informative that to ignore their significance may prove the breaking point in our results; in fact, too much stress cannot be laid to vital capacity, which should be routine in all chest surgery even when we are dealing with much simpler operative procedures than thoracoplasty.

It is indeed regrettable that we not infrequently hear that some clinicians, specializing in tuberculosis, will permit their initial enthusiasm for this surgery to become dampened, as they feel that their results are not commensurate with the risk taken by the patient. With disparity toward none, I believe the perspective is due to the fact that they are inappreciative of the task before us. Such desultory results are usually not attributable to the operation per se, but rather to the fact that the procedure has not been properly graded or timed in its sequence so the walls of cavities are operatively approximated, which is necessary for their eventual obliteration.

The prevailing conception of thoracoplasty in these cases is a two or three-stage operative procedure, and when this is completed, we are only too prone to express ourselves adversely relative to this operation, if the result is not brilliant. Unfortunately, none of us possess the uncanny intuitive power to unerringly determine the extent of resections necessary in every case, as lung fibrosis, pleural thickening and flexibility of cartilages are impossible of mensuration; hence, some cavitation will at times persist, especially in very fibrous cases and when the interval between stages has been prolonged through unforseen contingencies.

In the medical management of tuberculosis, persistence is the foreword and no specified time is allocated to a patient to make a recovery, but it is very necessary that we readjust this perspective for cases after thoracoplasty when a cavity remains patent; and advisedly persevere early with additional surgery until the optimum result is attained.

For example, let us assume that the case has had a two-stage operation but a cavity still persists; then we should take a definite stand relative to supplementary work, depending on the condition and operative response of the individual within a period of, say, approximately ninety days. The type of surgery here indicated falls under three heads: (1) extrapleural pneumolysis or apicolysis, feasible only for small apical cavitation, (2) parasternal thoracoplasty, the best method before fixation of the paravertebral area, and (3) antero-lateral costectomy, the only alternative as a late procedure when rigidity of the operated chest has occurred.

Obviously, we are failing in these patients by permitting a long interim to ensue before insisting upon supplementary surgery; too often a year or more has elapsed, when extension in the contralateral lung or low cardiac reserve prohibits further surgical help.

One can hardly dismiss any general consideration of thoracoplasty in tuberculosis without at least passing reference to associated bronchiectasis, which, in my opinion, is present to some degree in most cases of far-advanced phthisis. This concomitant usually becomes of import only when the diseased lung is inadequately collapsed by thoracoplasty, which is commonly the result of a faulty procedure, and the resultant distortion with narrowing of the larger bronchial trunks soon causes bronchiectatic changes, which are forcibly brought to one's attention by the persistence (instead of disappearance) of sputum after operation, that is found to be bacillary-free.

Realizing the proved fact that thoracoplasty even under ideal conditions is more of a palliative than a curative measure for advanced bronchiectasis, it is therefore of paramount importance that this associated condition be promptly recognized and its extent visualized by bronchography, in order that its further development may be early curbed by supplementary costectomy of wide scope when physically feasible; otherwise the results of thoracoplasty will be correspondingly vitiated in such cases.

Resuts in 165 extrapleural thoracoplasties performed the past nine years on advanced tuberculous patients, many of whom did not fulfill the strict indications laid down for this operation, are as follows:

Total operative stages	302	
Apparently cured	50	(30.3%)
Arrested	34	(20.7%)
Improved	8	(4.8%)
Unimproved	2	(1.2%)
DEATHS		
Operative (first week)	12	(7.3%)
Early (within three months)	16	(9.7%)
Late (after three months)	43	(26.0%)

THE SPECIFIC TREATMENT AND PROGNOSIS OF HAY-FEVER

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The general public are aware that hay-fever can be prevented, and have learned to apply for treatment well in advance of the expected date of onset of their symptoms. To this group specific treatment, which is "preseasonal," offers a good chance of preventing the attack which will surely come if no treatment has been instituted. There are patients, however, who wait until their acute symptoms have already become well established before applying for relief. To this group "co-seasonal" treatment offers something in the way of immediate relief. Symptomatic treatment may be indicated in any case and may frequently be quite effective.

Specific desensitization finds its widest application in the treatment of hay-fever caused by pollens and the same principles and methods should apply to specific treatment with many other substances besides pollen. Desensitization is the process by which the reaction of the patient to the offending substance may be modified, and is frequently desirable and clearly indicated. It is highly specific and no treatment will be successful unless the extract is made from the exact substance causing the symptoms. If the patient has symptoms in late July and reacts to Bermuda grass as well as, for example, Russian thistle, an extract of Bermuda grass will not protect him from Russian thistle.

The degree of sensitivity varies widely among individuals and must be determined as carefully as possible before beginning treatment. This degree of sensitivity manifests itself in at least three ways: First, the degree of clinical sensitiveness indicated by the severity of symptoms and by the apparent amount of exposure to produce them. Second, the tolerance is indicated by the size of the skin reaction in relation to the dilution of allergen used. Third, the degree of sensitivity may be estimated by the response to subcutaneous treatment, the tolerance being high when successive doses can be rapidly increased with only small reactions, and low when small doses produce large local reactions and are slowly increased. We must always qualify degree of sensitivity by making it clear how it is determined. In most cases patients highly sensitive clinically will give large skin reactions and frequently to small subcutaneous therapeutic doses. Violent hay-fever, however, is not always accompanied by large skin tests, and, too, the skin test may be large and symptoms mild. More important are those whose scratch test reactions are small to pollen dilutions and yet who will react violently to relatively small doses used in subcutaneous treatment. The tolerance to subcutaneous doses varies widely, but is usually fixed at a fairly definite level for each patient beyond which any considerable increase will cause excessive local reactions. Tolerance can be raised but only small doses should be used for this purpose, as general reactions may result from larger doses.

Subcutaneous tolerance and clinical sensitiveness rise and fall together, and the difference in individuals depends on difference in the level of tolerance, so the maximum dose depending upon the sensitivity of the individual must not be set at any particular quantity for a group of patients. Set dosage, based on the average response of average patients, will benefit those average patients, but if the dosage is too large, constitutional reactions will occur, and if too small there will be no relief of symptoms.

In prophylactic or preseasonal treatment the time of the initial dose is arbitrarily determined and ranges from six weeks to four months previous to the expected date of onset of symptoms. On the whole, it seems that an early beginning of from eight to twelve weeks in advance of the onset of the season i sfollowed by better results than when treatment is started late.

The size of the initial dose is based on

tolerance. At first the only available index is the result of scratch or tntra-dermal tests made with different dilutions, and treatment is begun with that dose which gives a negligible reaction. In former patients returning for treatment in another year, the written record of previous treatment is of far greater value than the skin tests, and current treatment can be started with a dose close to that which first produced a definite local reaction the previous year.

The number of doses and interval between them cannot be determined in advance but must depend upon the progress made, with the local reaction to subcutaneous doses being the important guide to treatment. The local reaction consists of redness and swelling and wheal formation at the site of inoculation, which begins at once after injection and reaches the maximum in six to twelve hours and often remains as a diffuse red, itchy swelling for twenty-four hours or for days. If the reaction is small, the dosage usually can safely be doubled. Some clinics do rot try to get local reactions, but most allergists believe it is only by producing and watching them that treatment can be properly adjusted. Aim to get a local reaction the size of a fifty-cent piece and raise and lower next dose accordingly.

Successful results depend upon a treatment which is optional for the particular patient and it is desirable to reach this dose before the pollen gets into the air. Best results are obtained when treatment is continued into the pollen season and often to the end of pollination of the causative plant. Sometimes in the season one can stop treatment, if the patient has passed the usual time for his symptoms and remains free while other individuals are having symptoms.

Co-seasonal. or phylactic, treatment is conducted in a similar way, except that doses are given daily or every few hours, provided the reaction from the last dose has disappeared. The doses are smaller and given intra-cutaneously. The local reaction must be much more guarded and controlled because the poison absorbed through the nose, added to that given by injections, may easily make an excessive total dose. Constitutional reactions are important and may be serious in any patient receiving desensitization treatment. The symptoms are severe and prompt, ordinarily occurring a few minutes after treatment. These reactions are caused by over-dosage, accidental injection into a venule and the change from an old to a new extract during the course of treatment. Intra-muscular and intracutaneous injection further increase the possibility of general reaction. Prompt use of epinephrin usually relieves immediately.

In the past, very little has been said about the curability of hay-fever. But as time passes and the number of cases treated thoroughly and repeatedly for many seasons are accumulating, we are coming to the realization that it is possible for hay-fever to be permanently relieved. Henry states that successful desensitization for three to five years frequently gives permanent results. Walker, in an analysis of 100 apparently cured cases (the word "cure" meaning freedom from symptoms for two or more years without treatment), concludes that when pollen tests become negative it seems safe to stop treatment. In those in whom tests do not become negative. it is desirable that the patient have at least one and preferably two seasons of complete freedom from hay-fever while being treated before treatment is discontinued. Piness reports 90 per cent of his cases get relief. Bernton says 94 per cent of his cases improve. Von de Vear, Cooke and Spain report 75 per cent to 100 per cent relief in 85 per cent of their cases in 1925.

While the results of pollen therapy as a whole are good, there are many cases of failure and this may constitute the majority in the hands of men who have had little experience with this form of therapy. The number of failures ranges from 5 to 10 per cent. Cohen and Rudolph give the cause of failure as follows: (1) Incorrect diagnosis; (2) inadequate or improper treatment; (3) inability of the patient's body to develop a tolerance to pollen following injections of pollen extract; (4) contact with unusually large doses of pollen.

Sometimes there is a co-existing sensitivity to some substances other than pollen which may exacerbate symptoms during the pollen season, and failure to determine and eliminate these extra factors is responsible for the majority of failures by specific methods. Belyeat emphasizes the importance of orris root and finds it to be a factor in 7.2 per cent of 373 cases of hay-fever. Gelfand concludes from a study of his failure cases of hay-fever that extra pollen sensitivity is often accountable for non-response to specific treatment and recommends that all seasonal hay-fever subjects be tested routinely with the inhalants and the food proteins.

Attention to certain factors will lead to maximum results. These factors are: early preseasonal treatment, with treatment continued into the season; individualization of dosages of pollen extract and intervals of

treatment, according to the reaction of the patient; careful determination of the pollen to be used; and preservation of the potency of the pollen extract by refrigeration in concentrated form.

Ramirez, who has analyzed 425 cases treated by different methdos, draws the following conclusions: "It is evident that the best results are obtained in cases coming about three months before the expected pollination date, receiving two weeks' intensive treatment, increasing the dose of pollen rapidly and continuing injections up to the pollen season, reaching as high a dose as possible, then continuing injections once a week throughout the entire season."

CHEMOTHERAPY IN SO-CALLED ALLERGIC DISEASES

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In considering chemotherapy in allergic diseases, this review will limit itself to asthma and hay-fever and our experiences for the past two years, in the treatment of these diseases with chemicals.

It is necessary to realize that these patients have a definite hereditary tendency, that emotional upsets frequently precipitate severe asthmatic attacks quite suddenly, with a gradual decline the rule. Sudden changes in climatic conditions frequently cause decided upsets, badly ventilated rooms, and various other causes that eliminate any possibility of pollen and protein being alone the etiological factor producing these manifestations.

During attacks we frequently find definite metabolic changes in the body and in the body secretions that lead us to believe either that the changes are produced by the diseases or that the disturbance of the metabolism causes the disease, or at least a tendency to precipitate an attack of the disease.

We are all aware of the patient who goes to a high or low altitude and frequently secures instant relief, for a time at least, and does so while on the same diet or in the presence of the same external exciting cause. This leads us to the supposition that an economic balance has been obtained that produced the relief.

It is to be noted that patients with a low alkali reserve and a high acid are not as subject to these attacks—witness the diabetic, pregnancy, acute infections, and the habitants of the higher altitudes. These are known to have, as a rule, a low alkali reserve, and also it is well known that patients of this class are relatively free from allergic manifestations, even though at other times they are subject to severe and at times frequent attacks.

It is never advisable to institute therapeutic procedure in hay-fever in any form until the upper respiratory passages and the sinuses have been examined by a competent specialist and all traumatic and infectious conditions ruled out, and in asthma, traumatic and cardiac conditions eliminated. A careful history and dermal tests are quite necessary to determine the offending agent and are fairly reliable, but it is quite disconcerting to place a patient on a special diet and have him return in a short time in more distress than ever. I do not wish to decry the use of skin test, and the usual procedure of desensitizing an individual. For years I have used this method and expect to employ it, when advisable, in the future.

Of the numerous chemical agents employed in the treatment of these disorders we will review a few that have enjoyed considerable popularity, some over a long period of time.

In asthma the iodides have been used quite extensively with, at times, very satisfactory results. Many failures can be traced to selecting a therapeutic agent when it is not at all indicated. The use of iodides should be based on their tendencies to promote the absorption of inflammatory or hyperplastic products. They are apparently more effective when the pathology involved belongs to the nervous or the connective tissue structures and in particular when the process is determined by the syphilitic, the rheumatic or the scrofulous cachexia. Over purely idiopathic hyperplasia or inflammatory products the resolvent power of the iodides, though often decided and sufficiently so to be exceedingly valuable clinically, yet is distinctly less pronounced. In affections of epithelial structures, the influence of the iodides is perhaps the most marked in bronchocele, and much more so in the idiopathic variety than in that belonging to Basedow's disease. To develop the full effect it is often necessary to resort to 2 to 4 drachms a day, especially in organic diseases of the nervous system, whether syphilitic or idiopathic.

Sodium iodide bears to the potassium salts the usual relation of a sodic to a potassic chemical brother. It is less depressing, less irritating, and less diuretic but also, though efficient enough in ordinary cases, is less reliable in those cases that test medicinal potency most severely. The dose is the same, with the observance of the same precautions.

Certain calcium salts, as a stimulant, as-

tringent, alterative, resolvent and antiseptic, have been employed in asthma and hay-fever for some time. And we see some quite striking results in the use of calcium chloride intravenously, 5 c.c. of a 5 per cent solution being used. It has been our practice to discontinue the use of calcium salts orally whenever possible, as we find in the presence of fats in the gastro-intestinal tract a saopy concretion is formed that is indigestible and is unassimilable. When we are forced through circumstances to use these salts orally, we restrict all fats in the diet and give the doses between feedings.

The salicylates have been employed for many years in many asthmatic conditions, frequently with beneficial results. It has been proved that the salicylates, if given in sufficient doses, will produce acidosis.

Mineral acids are now being used quite extensively, and justly so. Nitrohydrochlorric acid, in 6 to 12 min. doses four times a day, has produced some quite striking results, especially in hay-fever. Our experinece has been rather disappointing with this agent in asthma; and with the dilute hydrochloric acid, even in one drachm dose three times a day, we have been more disappointed.

Unfortunately we have been unable to keep a very close record of some of our cases, due to the fact that many of them live out of town and we do not get to follow them as closely as we should, but will review some of them.

CASE REPORTS

Woman, age 64, came to us in February, 1924, with asthma. No exciting cause could be found, but the history revealed that these attacks always came in February and only when she was living in her home that was in an alfalfa field. We found moving her to other surroundings gave instant relief. We also found Lugol's solution, 3 min. doses every four hours, gave her relief in twenty-four hours, and, if continued for a week or ten days, she had no more attacks until the next February.

Male, age 44, coal miner, had asthma for more than fifteen years. Lugol's solution gave relief in a few days, and he was able to continue work as long as he used the medicine. But discontinue the medicine and his attacks would return immediately.

Female, age 9, has had asthma for six years. She had skin test made and proper desensitizing procedure instituted and continued for one year without results. Acid and calcium over three months' time had no effect. Acid and a solution of spleen liquid prepared by Armour and Company gives perfect relief from twenty-four to forty-eight hours, but is not permanent.

Female, age 34, had asthma for six years. Desensitized without results. Change of climate to any place gives relief for about two months. Acid and calcium gives some relief if used constantly.

Male, age 41, hay-fever. Desensitized annually for three years with some results. Calcium and acid gives good results.

Male, age 39. Hay-fever. Desensitized annually for four years. Some relief. Calcium alone, gave complete relief.

Female, age 36. Hay-fever. Desensitized annually for two years. Some relief. Calcium gives complete relief.

Female, age 7. Hay-fever one season. Ten days' acid therapy gave complete relief.

Our conclusions are: Always have skin test made to determine the offending agent, and remove the cause, if possible. Use desensitizing therapy if practical and supplement that with acid and calcium treatment. If impractical to desensitize the patient, use acid and calcium alone. We feel there is no specific for this class of patients, but do maintain chemical treatment is of great assistance to about sixty to seventy per cent of these cases, and often gives complete and apparently permanent relief.

ALLERGY FROM THE STANDPOINT OF THE OPTHALMOLOGIST AND THE OTOLARYNGOLOGIST

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There is, perhaps, no special group of men in the practice of medicine who have a better opportunity t oobserve allergic phenomena in the early stages, than the ophthalmologist and otolaryngologist. It has been our experience that many of the patients who are to become true allergic cases—i.e., hay-fever sufferers and asthmatics—have some ocular or nasal manifestations of this beginning allergic condition, often many months or years prior to the development of hay-fever and asthma.

OCULAR MANIFESTATIONS

There is, of course, a certain number of cases who present themselves annually, particularly during the spring or summer months, who come to us thinking they need glasses or who have been referred to us thinking they have some infectious condition of the eye. The most common forms of allergic phenomena which occur about the eye are: chronic conjunctival hyperemia (chronic conjunctivitis), chronic marginal blepharitis, tearing (epiphora), and encanthis (caruncultis). These cases present a similar clinical picture, regardless of the anatomical lesion. The majority of these patients complain of itching and burning of the eye with a pronounced asthenopia. Each has a slight photophobia due to the irritation and subsequent epiphora. Their eyes tire easily upon the slightest provocation. Examination will show little or no refractive error, with normal intra-ocular findings. These cases may be divided into the animal protein group: i.e., dandruff, cat hair, dog hair, duck feathers and goose down, and will generally show positive to these extracts when given intra-der-

mally. In the second group, we find the seasonal hay-fever patients who are susceptible to the various botanical groups. The botanical group seem to establish a certain ocular immunity after a period of pronounced symptoms. That is, a patient who comes into this hay-fever district may complain bitterly of the eyes at first and, after a short period, have little complaint, even though he has developed into a typical allergic victim. This does not seem to be true of the animal protein group. Their condition seems to be progressively worse unless the etiologic factor is removed. We see this in the patients who are sensitive to duck feathers and goose down. They complain bitterly of their eyes, particularly in the morning. The reason for this, of course, is that they are more or less in contact with the goose feathers and goose down while sleeping. They generally respond when kapok is substituted for feathers in their pillows or feather beds. The family cat may be at fault and may be the cause of these eye conditions.

The inoculation of the eye may be from many sources. (1) From systemic toxemia. The mechanical noxae may make the attack from the blood stream, from which they are thrown out into the tissues that become affected. This is true of the food-sensitive cases. A good example, however, of this particular type, are those in which crysarobin or napthalin is used in the treatment of skin diseases, with subsequent ocular manifestations. (2) Nasal lachrymal passage, in a well developed allergic, sneezing, causing a back flow through the nasal lachrymal duct into the eye. These cases usually show a severe inflammation of the caruncle (encanthis). Their symptoms are more confined to the inner canthus of the eye and will show the effect of having rubbed their eyes very forcibly. (3) Through contact. Of course, these cases are the ones whose eye symptoms become pronounced upon motor trips, as they come in contact with the heavily pollinated air; their symptoms are much more pronounced when there is heavy weather, than when it is still. Also, following rain and fair calm weather, the atmospheric condition has a favorable influence.

Methods of treatment in these cases are varied and more or less unsatisfactory. Collyrium, which is astringent in nature, is of value. This not only mechanically washes the globe but more or less closes the lymphatic channels. Some form of glucose mixed in this collyrium serves as an ameliorant and seems to allay the irritation and give comfort to the patient. Adrenalin, or suprarenin, is widely used, but is of very temporary value. Should the pain and tearing be so pronounced that the patient is, as he terms it, nearly crazy with rubbing his eyes, then, the use of eye drops containing a quarter per cent holocaine, is not harmful in ameliorating the symptoms. The treatment of these cases is, in the main, either desensitizing or the avoidance of pollinated areas and motor trips, or moving to the sea-shore during the hay-fever months.

NOSE, THROAT AND EAR

It is sometimes hard to determine whether the allergy through blocking has preceded an infection of the nasal accessory sinuses or whether the infection has been responsible for the allergic symptoms. The part played by bacteria as an etiologic factor in nasal allergy, has yet to be proved. I believe that the general opinion is that the bacteria are secondary invaders which are aided by the blocking and congestion of the nose due to the allergic sensitization. However, in cases consulting the rhinologist for blocking of the nose, allergy should always be kept in mind. The general belief is that general vasomotor reactions occurring in hay-fever and bronchial asthma are manifestations of hypersensitiveness; the histopathology shows a marked thickening, hyperplasia and polypoid degeneration, of the mucous membrane. The tunica propria of the epithelium shows an eosinophilia, a large round cell infiltration with some tissue proliferation. There is a dilatation and thickening of the blood vessels. There is also, in the periosteal layer, a round cell infiltration and connective tissue multiplication. Eosinophilic infiltration in the mucous membrane of the nose and sinuses, with free eosinophiles in the nasal secretions and blood, are then, of course, suggestive of allergy; just as eosinophiles in the blood and sputum are indicative of the existence of allergy in bronchial asthma. In every case of suspected allergy, the nose and sinuses should be carefully studied for these findings, as they may be a valuable adjunct in making a diagnosis of allergy. Any case of non-suppurating or hyperplastic sinusitis should, to my mind, be considered allergic, until it is proved otherwise. There has not, as yet, been any definite classification of the allergic diseases of the sinuses as compared with other forms of sinus disease.

The treatment of these cases is indeed a problem. Any treatment is of value only in the amelioration of the symptoms, which are often so distressing as to interfere with the patient's livelihood. Day after day, in our office, patients come to us with a history of having sinus disease. The majority of these cases have run the gauntlet of the rhinolo-

gists and a great number of them, we are sorry to say, have been little benefited by the treatment given them. The reason for this is, of course, that local treatment is only palliative and not curative. The finding of the obnoxious agent and general desensitization is, of course, the only sure cure for these patients, other than a change of climate. Avoidance of pollen-contaminated areas is of importance. Air filters are of value. Locally, the treatment is aimed at some preparation which will prevent the mucous membrane of the nose and throat from actual contact and absorption of the pollen toxin. Liquid petrolatum is as good as any preparation I know. Some find the use of ephedrine in some form to be of value. Yet, we find that the allergic patient soon builds up a tolerance for the ephedrine products and they then not only become ineffectual but actually stimulate cellular hyperplasia. Therefore, we do not recommend their use. Surgical intervention is indicated only in those cases which, through the blocking due to the allergic sensitization and subsequent vasomotor disturbance, develop a true infection in the sinus proper. Should the blocking become so profound as to interfere with the nasal respiration, producing violent attacks of headache, it is usually well controlled with the implantation of a small radium needle in the lateral wall of the inferior turbinal bodies, allowing freer ventilation of the nose following the contraction produced by it. However, this should be used with caution. Removal of the turbinal bodies is mentioned only to be condemned. This is, to my mind, one of the most vicious practices which reflects on the rhinologist. These patients, of course, get immediate relief of their nasal blocking and feel exalted for a short period of time. They then return with the symptoms of a dry throat, air hunger and many more disturbing symptoms which are much more distressing than their former nasal obstruction. Should there be, however, a nasal deformity or thickened septum, bony growth or deflection, then these should be corrected only. To repeat: Let me say that the conservative treatment, the aim of which is only to protect the normal mucosa until general desensitization can be accomplished, is what we consider the treatment par excellence. Local treatment is, then only palliative and not curative.

The relation between bronchial asthma and nasal infection. It has been our experience that a large percentage of asthmatics depend upon chronic sinus disease combined with allergic phenomena.. We believe that sinus infection is never the true source of allergy but aids in the general toxic condition and is, therefore, a contributory or seconadry factor. Surgery in asthma has come into more or less disrepute. There are several reasons for this: first, the existing histopathology has been poorly understood; second, the anatomy of the ethmoidal labyrinth whwich, in the great majority of cases, is at fault, is such that it extends into regions which are more or less inaccessible either by intranasal or external operative routes. Any surgical procedure which would attempt to exenterate this region, would be a procedure which is certainly improper to undertake. So-called exenteration of the ethmoids is usually followed by recurrence of the hyperplasia and polypoid formation, not because of operative incompleteness, but due to deep-seated histopathology inherent within the ethmoidal labyrinth. To claim, without deep study, a cure for asthma by radical surgery, is certainly not rational nor effective. It can not be said that all asthma is due to allergic phenomena, nor that it is due to infection. It is generally always a combination of both, for patients who have had radical surgical procedures which should cure, in my observation get only slight relief and continue to have asthma. Therefore, in these cases, desensitization with conservative local methods aimed at adequate drainage of the accessory sinuses, is, in our mind, the proper rational regime of treatment. Antral infections are, of course, from their anatomical location, much more accessible than any of the other accessory sinuses. Conservative operative measures here, such as a nasal antral opening, are indicated should the antrum be found to be infected. This is usually a satisfactory procedure, particularly in bronchial asthma. The nasal symptoms are based on irritation of the sensory nerve fibers. Itching and tickling, resulting in sneezing, are of course, a common finding. This is due to the absorption by the nasal mucosa of the allergic products. Pain due to blocking of the nose, which is deep-seated and accompanied by a mucoid discharge and which is followed by severe edema of the mucous membrane, is common. We see others who complain of catching cold early in the summer and its staying with them until fall. The majority of these are allergic. The pathology in asthmatics is identical with that of the nasal mucous membrane—cosinophilic infiltration, thickened mucous membrane, connective tissue hyperplasia, and therefore, secondary disturbance of function.

The ears do not escape this allergic reaction. The continuity of the mucous mem-

brane of the nasal pharynx with that of the eustachian tube, renders this organ susceptible. The same pathology as existed in the nasal mucosa is present in the walls of the eustachian tubes. This causes a blocking of the tube which interferes with the ventilation of the middle ear. This produces, of course, subsequent contraction and adhesion of the tubal walls, resulting in so-called catarrhal deafness. These patients may also complain of mastoid pain due to the absorption of air from the pneumatic areas of the mastoid and intense itching is present in most cases, the patient being unable to localize it, but apparently it runs from the nasal pharynx to the middle ear. Repeated inflations of the middle ear will prevent, to a certain degree, adhesions of the eustachian walls, with subsequent deafness. Tinnitus also is generally relieved by these inflations.

Argyrol packs, neo-silvol packs, hygroscopic compounds (glycerine) and suction. For vasomotor constriction: ephedrine, adrenalin. Astringents: zinc sulphate, aluminum sulphate and silver nitrate. Colloidal silver preparations seem to be in vogue in almost every rhinologic periodical. We see these preparations written up by competent men and depicted as almost a panacea. These preparations are presumed to pass through the mucous membrane into the underlying tissue and remove, in some fantastic manner, the actual tissue hyperplasia which has taken place and, after from six to eight weeks of treatments at twenty-four hour intervals, the part is said to be immune to allergic phenomena, as far as the nasal mucosa and accessory sinuses are concerned. In our experience this is not true.

The basis for allergic phenomena is disturbed metabolism, whether this be due to faulty assimilation or to some toxic protein compound which, within itself, is toxic. Therefore, we must look upon these conditions as an alteration in the chemical structure of both the cellular protoplasm and the fluids surrounding it. In conclusion, let me say that the treatment of allergic conditions about the eye, the nose, throat and ear, are only palliative in nature, curative measures depending entirely upon desensitization or avoidance of contact with the affecting protein. In other words, allergy is a constitutional disease and must be treated as such.

GENERAL ANESTHESIA FOR SHORT OPERATIONS

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For many years ethyl chloride and a certain patented compound which is principally ethyl chloride (I refer to somnoform) have enjoyed a degree of popularity for surgical operations of brief duration. This is chiefly on account of ready portability, ease of administration and a good working depth. It is of course well known that for administrations of brief duration nitrous oxide-oxygen is by far the safest and least toxic of all anesthetics, but the cumbrous nature of the necessary apparatus has made its use scarcely available except in hospital. Then, too, in nervous patients a satisfactory depth of narcosis is often so difficult to secure as to result, in many instances, in practical failure.

My experience with somnoform extends over many years and includes something like five or six thousand administrations. Untoward effects were rare but did sometimes occur and upon one occasion resulted in positive disaster. Because of the ever-present, though remote, possibility of danger of syncope which is inherent in ethyl chloride and ethyl chloride compounds, I finally became discontented with somnoform and began to try to find a satisfactory substitute of sufficient portability for practical purposes.

The promise of an anesthesia of greater depth from ethylene, over that of nitrous oxide, led me first to think of this agent. With a view to obtaining the greatest degree of portability I wrote to a chemical company putting out gas-oxygen, inquiring if a mixture of ethylene-oxygen in a three to one ratio might be supplied in a single container. I was not surprised to have the proposition turned down as impracticable. This company did consent, however, to put up for me nitrous oxide-oxygen in a ninety-four to six ratio combined in a single cylinder.

Both nitrous oxide-oxygen and ethylene-oxygen proved very disappointing in depth of anesthesia, and quite inferior to somnoform in that particular. Finally, after trying to anesthetize a nervous old lady, for tooth extraction, with straight nitrous oxide-oxygen, with the result a complete and dismal failure, I decided to try out the routine addition of a drip cupful (two drachms) of ether in every case of short anesthesia. The result was satisfactory beyond all expectation. Of course I had long known and used ether addition to nitrous oxide to intensify the depth of anesthesia. What I had failed

to appreciate was the perfect innocuousness of ether so used. I had expected to find the almost constant occurrence of nausea which is so usual a sequel to ether administration. Instead I found that, when the ether was limited to about one drip cupful on my Sanders mask, that is to say, about two drachms, there was a smoother recovery from the anesthetic and fewer cases of post anesthetic vomiting than when somnoform was used.

One very marked advantage that this anesthetic has over somnoform is the absence of the need of haste. The operator who uses somnoform must be prepared to work fast as it is suitable only for operations of very brief duration. Only too often the surgeon who wants a "whiff of gas" finds that it takes more time to satisfactorily complete the operative procedure than had been anticipated. In fact, this is usual. So that anestheisa of sufficient depth once attained, it may be prolonged as necessary by continuing the nitrous oxide-oxygen alone or with the addition of a little more ether as the occasion requires. Of course, when anesthesia is prolonged beyond that usual for brief operations, the surgeon can not and should not expect the patient to be so quickly ready to leave the office nor to be so sure to entirely escape nausea. After all, the principal object to be attained is that the operation should be done thoroughly and safely under a comfortable working depth of anesthesia.

As to the portability, I have already stated that I had put up for me a ninety-four to six nitrous oxide-oxygen mixture in a single container. This had in the main proved so satisfactory that I was about to present this subject in the manner it is now given. Before doing so I desired to test out several ratios of nitrous-oxide-oxygen such as ninety to ten and ninety-two to eight mixtures with a view to obtaining the most suitable strength best to meet the majority of requirements. The ninety-four to six worked very well with adults, ut was found to be too concentrated for children without admitting air from time to time.

I applied for ninety to ten and ninety-two to eight mixtures but was turned down by the manufacturer. I tried another firm, only to meet the same discouragement. This latter house declared they had not been asked to put up a nitrous oxide-oxygen mixture in a single cylinder in the past fifteen years.

In spite of the theoretical objections raised by the manufacturers, the one-tank mixture works satisfactorily. I have used three tanks of ninety-four to six mixture and should know. In view of so much opposition on the part of the chemical houses, I decided for the present to use one tank each of notrous oxide and of oxygen, which I carry in a holder of my own contrivance.

This holder consists of two oval bands of monel metal connected by a strip of metal at the top, to which is attached a carrying handle. Bolts passing through the middle of the ovals and between the cylinders, draw the bands down to figure-of-eight shape and clamp the cylinders to that they are held rigid.

By using B cylinders, the weight is not much more than a good-sized doctor's satchel. The Sanders mask I use is easily carried and is probably the best one in the market for this purpose.

The Technic. In giving short anesthesia the bay is filled with nitrous oxide and a rather liberal proportion of oxygen, perhaps as much as twelve or fifteen per cent. By gradually adding more nitrous oxide I soon have the mixture reduced to about six or eight per cent oxygen. The free use of oxygen at the outset prevents any smothering sensation and helps ease the patient into tranquil anesthesia. Before beginning, it is well to assure the patient that the mask will not be held tight to the face but will be lifted from time to time. This measure, by eliminating fear, aids in bringing about a smooth induction and enables the anesthetist to observe from time to time the color of the face. Additional spurts of nitrous oxide and oxygen are added from time to time as needed. After administering the gas for a minute or two, ether, at first slowly, is allowed to drip, drop by drop, into the mask. The rate of dropping is so gauged that by the end of five minutes the drip cup is empty and the patient almost invariably anesthetized to a comfortable working depth.

It is to be remembered that this procedure does not result in ether anesthesia. It is essentially a gas anesthesia intensified by the addition of a small amount of ether and has the prompt recovery and freedom from after effects that is usual when gas-oxygen is given. To produce real ether narcosis would require, not one, but five drip cupfuls of ether.

The carrier I have devised may also be used as a holder to steady the tanks so that the gas may be turned on with one hand while the other controls the mask.

The list of operations which may suitably be performed with the anesthetic procedure just described, includes tooth extraction,

opening boils, abscesses and small carbuncles, reduction of fractures and dislocations, rectal sphincter dilation, treatment of anal fissures, evulsion of finger and toe nails, paracentesis, tampon in the middle-ear infection and the removal of dressings which are adherent to raw surfaces.

There is only one important contra-indication to the use of nitrous oxide in brief operations and that is the existence of obstruction in any part of the respiratory tract, from the mouth and nasopharynx to the tiniest bronchioles. Nitrous oxide, harmless as it usually is, may become very dangerous in the presence of respiratory obstruction.

There is nothing new in the use of ether for increasing the depth of gas anesthesia. It has been used daily for many years, but so far as I know this routine has never been proposed as an eminently safe, satisfactory and portable substitute for ethyl chloride and its compounds.

CASE DISCUSSION
(Case of Multiple Peripheral Venous Thrombosis).

(Case No. 16011, Case Records of the Mass. Genl. Hosp., from New Eng. Jour. of Med., Jan. 2, 1930, p. 32).

Case Record

A married Polish woman forty-one years old entered June 15 for study, semicomatose. The history was given by her sister, who spoke little English and had not been with the patient much during the present illness.

Five weeks before admission she had sudden severe stabbing pain in the middle lateral portion of the left leg, making her sit down for a minute or two. The leg soon became red and blue and moderately sore. The condition traveled up to the groin, where a large tender lump formed. She had sensations of needles and pins in the left leg. No other part was affected. She continued to work, though she felt some malaise. The sister did not know about fever. The left leg was much swollen for a week. Apparently there were visible veins on the left side of the abdomen. Gradually the swelling went down and the lump in the groin disappeared. Two weeks before admission the patient had pain in the left upper arm, whether sudden or not was unknown. Within two hours the hand and arm had become swollen and blue, with numbness and pins and needles sensation. Since that time she had been in bed, feeling much worse. Veins soon appeared over the left shoulder and the precordia and still remained. During the two weeks a physician gave her five injections, the last five days ago. She had been alternately hot and cold, sometimes shivering (no real chill), at other times sweating profusely. She had complained at times of quite severe pains in the lower abdomen, the left axilla, not related to respiration, somewhat relieved by pressure, and pain in the lower back relieved by nothing but hot irons. During the two weeks she had taken nothing but water and orange juice. A menstrual period began twelve days before admission and continued with fairly profuse flow until the day before admission. She had lost considerable weight. She complained at times of pain and discomfort in the left anterior thorax, and at such times seemed to have slight difficulty in getting her breath. During the past five days the discoloration and swelling of the arm had disappeared. During the past two days she had become increasingly unresponsive. Her bowels had not moved for a week.

Her family history is not significant.

She had always been strong and healthy, though obese. Her sister knew of only two illnesses. Eleven years before admission, three days after the birth of a child, the patient got up and began to work. She was seized with sudden abdominal pain which required a hypodermic for relief and lasted about two hours. The next day she was entirely well. She had had several similar attacks at intervals of one to two years. Three years before admission she was kicked in the left ankle, which swelled and was sore for about two weeks, with entire recovery. Her last pregnancy, three years before admission, resulted in a stillbirth at term.

Clinical examination showed a well nourished woman, semicomatose, giving an occasional drowsy groan and now and then waving her left arm slowly. Head, throat, heart, lungs and abdomen normal. Over the upper left chest and shoulder anteriorly the veins were more prominent than elsewhere. In the left supraclavicular space there was an indurated area extending laterally along the floor of the space. The left arm was redder than the right and showed numerous telangiectases on the forearm. The skin of the left foot showed some desquamation. The leg was redder than the right. Both legs showed many varicose veins. There was a small black papule on the left leg. Pupils normal. Knee jerks hyperactive.

Amount of urine not recorded. Both of two catheter specimens showed a slight to a large trace of albumin and occasional leukocytes, one to two red blood cells per field once, acetone and diacetic acid positive once, specific gravity 1.026 to 1.035. Blood: 18,000 to 22,500 leukocytes, 80 to 84 per cent polynuclears, hemoglobin 70 per cent, reds 3,600,000. Two smears showed no achromia, anisocytosis or poikilocytosis, platelets normal. Four atypical cells seen, almost certainly velocytes; two definite blasts seen. Hinton negative. Blood culture: no growth. Non-protein nitrogen 38 milligrams.

Until June 18 temperature 100° to 101.5°, pulse 100 to 120, respirations normal; a terminal rise to 106.1°, pulse 150, respirations 51.

A consulting neurologist could not explain the semicoma. He found the fundi and reflexes negative. No Kernig or Babinski. He recommended a lumbar puncture. It was done and was negative.

The patient remained in the same condition as at admission. The night of June 17 she was said to have had a convulsion followed by coma which was still present the next morning with no other physical signs than the rise in temperature, pulse and respirations and a marked increase in swelling around the left supraclavicular space with heat and a yellow tint as of subcutaneous hemorrhage. There was also a large swelling in the right supraclavicular space, thought to be a lymph gland. June 19 her condition became steadily worse and she died.

Discussion by Dr. R. J. Stroud, Tempe, Ariz.

Thrombosis in general attacks the venous system. The structure is that of a deposit of blood platelets gradually laid up in layers, which constitutes the head or white portion, and a tail and body of blood elements, which are red. It is in dispute whether infection is always present, or whether it can form from variations in blood flow, changes in blood constituents, and changes in vessel walls, independently of infection. Thrombi form in the immediate neighborhood of infected foci; in large venous trunks opposite an inflammatory area, and so forth. There are those which form at places remote from the original focus and those which arise from infections, specific, as typhoid or complicating cachexias and constitutional diseases. Whether infection is secondary or whether the thrombus forms only when infection is present, is not the point in this instance as, when the spread came, there was undoubtedly infection present. When multiple thrombi occur there must be an original source of infection for no doubt embolic processes take place in this condition. There is the possibility of a process on the veins similar to the heart in an infective endocarditis, in which emboli form other thrombi. If we give credence to selectivity of organisms there is the possibility of a strain which attacks the intima of the veins. This would account for multiple infection and thrombi. The primary thing would be mycotic endophlebitis with many secondary thrombi. The left thigh is most often the seat of thrombus in primary affections of vein plugging, as was the case in this particular woman.

There are several things to explain in this particular case. The sudden sharp pain in the abdomen, which disappeared, could have been a small thrombotic area in the mesentery; the pains of the left axilla and the left anterior thorax, could be either within the chest cavity or related to the veins outside. Inside the cavity there could be and probably was some thrombotic infarction. Syphilis could be present when we consider that the last child was stillborn, but against that is the fact that seldom is a thrombus due to syphilis found except in subcutaneous veins. There is a menstrual flow to be considered—lasting 12 days and profuse, perhaps menopausal—but still not accounted for in the light of the fact that a thrombus could have come from infected adnexa. There was some anemia which could have followed the primary condition and which favored the ever-extending thrombi. There was an infective process when the white blood count was taken and the few myelocytes found were insufficient to diagnose leukemia. No growth on blood culture, when taken only once, does not preclude organisms and infected emboli in the blood. The loss of weight and only orange juice by mouth, accounted for the acidosis present, as well as the high specific gravity. This could also account for the albumin. The comatose condition was apparantly unexplained, as no eye examination is described and other neurological findings are negative. Sinus thrombosis, together with the apparent jugular thrombosis, could account for this even with no increase of pressure in the spinal fluid. It is very hard to rule out syphilis in this class of death, with a negative finding neurologically. Blood pressure is not given so we are at a loss to know how the arteries were. The heart shows no evidence of septic endocarditis but it is hard to rule out.

Diagnosis: Multiple venous thrombosis and death from sinus thrombosis.

Original focus probably from primary endophlebitis of left thigh.

Possibility of syphilis or septic endocarditis.

Discussion by Dr. James Madison Greer, Phoenix.

The important points given in this case are: Working woman age forty-one; some indefinite symptoms in the abdomen or pelvis in the past; this illness starting with a sudden sharp pain in the calf of the leg followed by swelling and some other signs of infection in the venous or lymphatic system, later subsiding. Two weeks later a condition in the left arm similar to that starting in the leg, with still some other signs of more or less general infection. There was also some abnormal menstruation. Gradual increasing unresponsiveness, with coma and death.

There are several things we should like to know about this case, in addition to what is given here. This so many time happens, not only in these cases we study here, but also in the cases we see in our daily work. We note that the head, thorax, heart, lungs and abdomen are normal. It would seem that that is a lot of territory to be taken in by only seven small words; however, it is quite characteristic of many of my own recorded physical examinations. We should like to know what the pelvis showed on physical examination. It is said that the abdomen was normal. Does that include the pelvis? The signs over the left shoulder are those of a septic phlebitis and the left foot showed signs of a previous inflammatory process, probably concerning the blood vessels or lymphatics. There seems to me nothing significant about the urine, that is, nothing more than one would expect to find in a patient so ill. The blood picture indicates a septic process, and some secondary anemia. The Hinton is reported negative, but I am quite sure that Dr. Clohessy would not rule out syphilis, in this case. I am not surprised that the consulting neurologist could not explain the semiconsciousness. I can hardly explain it myself. As this discussion is getting rather long for me, and nothing can be gained by turning it upside down or around, I shall now venture a diagnosis. From the sequence of events—the phlebitis, which in all probability came from the pelvis—I should like to say that the patient developed a septic thrombosis followed by cerebral abscess. Of course there is always the possibility of syphilis and malignancy in a case like this.

Diagnosis: 1. Septic phlebitis and embolus. 2. Cerebral abscess.

Discussion by Dr. Orville H. Brown, Phoenix.

The pain and swelling of legpoints to a venous thrombosis. Likewise, the signs and symptoms at other places were indicative of phlebitis and thrombosis. Probably the cerebral condition also was dependent upon phlebitis.

The enlargement within the left supraclavicular space suggests lymph node enlargement. The small black papule on the left leg suggests the possibility of a melanotic sarcoma. There seems to be no other suggestion of melanosis, however. The leukocytosis suggests acute infection. There is a moderate anemia. The myelocytes and myeloblasts indicate serious bone-marrow disturbance, and would suggest the diagnosis of acute aleukemic myelogenous leukemia. So far as disclosed by the record in this case there was no mouth sepsis, a common condition in acute myelogenous leukemia. The process was acute. There was no growth of organisms, however, on blood cultures. The phle-

bitis and thrombosis may arise from one of a variety of causes, such as septico-pyemia, puerperal infection, erysipelas, appendicitis, dysentery, gonorrhea, typhoid, measles, smallpox, diphtheria, gout, rheumatism, fractures, passive congestions, and so forth. Therefore, it seems that thrombosis might not be unexpected in acute myelogenous leukemia. Acute myelogenous leukemia belongs to an illy defined and understood pathological group sadly in need of study and differentiation. For the want of a better diagnosis, and taking the findings of the unusual leucocyte, I venture the diagnosis of acute myelogenous leukemia.

Discussion by Dr. Fred G. Holmes, Phoenix.

Possible diagnoses in this case are: (1) primary blood dyscrasia of a nature of myelogenous bocemia; (2 chronic septic process with septicemia focus located at undetermined point in the body; (3) some form of purpura; (4) luetic disease, suggested by the still birth three years previous. Of these diagnoses it seems to me that the most support can be found for the second, namely, septic condition with focus somewhere in the body. Definite localization of such focus is not suggested by physical examination or the history, as these are confined chiefly to description of the actual peripheral lesions. An endocarditis with septic emboli might produce this clinical syndrome. Even the myelocytes in the blood could be explained by chronic stimulation of bone marrow and blood building elements. The final condition on admission, which gradually terminated in coma and death, fits in with this diagnosis. A convulsion which was followed by coma without other localizing findings might be teken as central nervous system involvement, possibly causing an increase in pressure over the entire cerebral spinal system.

Discussion by Dr. T. T. Clohessy, Phoenix.

We have here, first, severe pain in left leg, followed by swelling of the leg and a tender lump in the groin, with subsidence later. No fever or leukocytosis mentioned, although they were probably present, as they were found later with a somewhat similar condition in the left arm. Three weeks after the first attack the left arm became swollen, this time with the significant polynuclear leukocytosis, fever, feeling of hot and cold, and sweating. Her present condition would certainly point to some bacterial infection, the brunt of which was first manifest in the left leg and later in the left arm and adjacent region. This infection has produced a phlebitis, first of the leg and later of the arm. Where the original focus of infection was, I see no indication in the record, except it be where she complained of pain in the left anterior thorax, with difficulty in breathing; at the same time, the left lung was apparently clear. These two positive signs and one negative sign would lead one to believe that the infectious focus was somewhere in the endocardium, possibly the lighting up of an old mitral valve lesion without physical signs. Negative blood culture would not obviate the possibility of occasional bacterial showers in the blood. To me the most probable diagnosis is phlebitis from some internal focus of infection, very likely the endocardium.

Discussion by Dr. Richard Cabot.

(In part, from above journal, p. 33).

The severe stabbing leg pain is evidence of embolus, whether arterial or venous we cannot yet decide. She continued to work, so I suppose it was venous. Presumably the injections given by her physician were morphia. She had pain in the left anterior thorax, on the same side on which she had something in the arm. The fact that the swelling in the arm disappeared, as did the swelling in the leg, is support to the idea of venous thrombosis. If her illness eleven years before admission was not gallstone I do not know what it was. On the basis of the history we certainly must believe that she has had multiple thrombi. It is much more natural to think she had first embolism, later thrombosis, in the leg, then in the arm, and very possibly something in the lung. This makes us look for a source of emboli.

I do not think we need pay any attention to that acetone and diacetic acid. We assume that there is no sugar in the urine. She may have been vomiting. If it is not due to that, she was so nearly unconscious that she has not taken much food and therefore has starvation, the usual cause of that finding. Unless the definition of myelocytes is given it does not help me at all; different people attach that name to many different cells. I am relieved that the consulting neurologist could not find the cause of the semicoma.

Differential Diagnosis

I feel so far very uncertain as to the diagnosis. I feel quite clear that she has venous thrombosis first in the left leg and then in the left arm.

Dr. Mallory: It is fair to say that there were large lymph nodes in the left groin.

Dr. Cabot: That is important. We have, then, large lymph nodes in the left groin as well as this one in the supraclavicular space; with evidence of multiple venous thrombosis and coma.

A Student: Would you consider diabetic coma?

Dr. Cabot: I should say it is very queer to have a person die in diabetic coma with no more history of increased appetite, thirst or albuminuria and with a negative urine. During the two weeks five injections were given. That is a queer way to give insulin. I am going to vote against diabetic coma. But that was a very ingenious suggestion. I never should have thought of it myself, but I admire the brain of the man who did.

I do not think we have enough evidence of a decided acidosis,—no air hunger, which we ought to get with any severe acidosis. I think we ought to assume a brain lesion. Let us discuss what may have been found in the brain. In the first place whatever blocked the circulation in the extremities may have blocked a vein in the cerebral system, a sinus for instance. I do not see why sinus thrombosis might not produce this cerebral condition. I have seen cerebral thrombosis without any localizing symptoms. If the edema of the brain was general it might account for the coma. Second, we have these enlarged lymph glands, which worry me a good deal. Whatever those are may conceivably be in the brain, too. What could they be? Could she have the lymphoid form of leukemia? I think not. Even if you agree that those are myelocytes, four myelocytes do not make a leukemia any more than one swallow makes a summer. If we take the red count seriously she has anemia; patients do not have red counts like that without some explanation. There is however the difficulty that she has no achromia, which is almost always present in any of the common types of secondary

anemia. I cannot therefore connect her anemia with the enlarged lymph glands, if they are enlarged lymph glands, and I do not see how we can say it is leukemia.

A Student: How about aleukemic leukemia?

Dr. Cabot: Let us call it lymphoblastoma without circulating metastases. What evidence have we of it? We have those four myelocytes, whatever weight we put on those, and more important, the presence of a definite anemia and possibly of enlarged glands. I do not remember seeing glands of this sort associated with such a blood as this in any type of blood disease that I know. I do not see how a diagnosis of any blood disease could be made on the basis of these facts alone. I do not know what those lymph glands are. They might perfectly well be neoplastic lesions of some type not connected with the hematopoietic system; but I do not know where to put any such neoplasm. One that would bring about thrombosis in the left arm and left leg with a gland in the right axilla is a hard one for me to think of. Hypernephroma is a tumor as often missed as any tumor we have. I do not remember seeing it going with any such metastases, if they are metastases, as this. We look for bone metastases in hypernephroma. Where else in the body could neoplasm be relegated? The tail of the pancreas? I remember they caught me with that twice at the Brigham Hospital, no one having suspected it. The lung? Perfectly possible so far as I know. We had proof of it last week. We had no x-ray in this case. I do not know just why not.

A Student: Is thrombosis sometimes due to mechanical pressure of enlarged glands?

Dr. Cabot: Yes. That is a good suggestion, especially about this leg, because that is the side on which we had a big gland. I think that is the best suggestion we have had. We have some enlarged glands, with thromboses. Still we want to know what the glands were. Could we say that these are the glands of Hodgkin's disease, of the primary type of lymphoma? I do not know why not. That seems to me a good idea. I had not thought of it at all. It could go perfectly well with this blood picture, and such thrombosis could be connected with such enlarged glands.

Clinical Diagnoses (From Hospital Record)

Multiple thrombophlebitis with septicemia.
Pneumonia.

Dr. Richard C. Cabot's Diagnosis

Hodgkin's disease with thrombosis.

Pathologic Discussion by Dr. Tracy B. Mallory.

(From page 35, above journal).

This case was one primarily of Hodgkin's disease. I think the unusual manifestations of the phlebitis and the coma rather distracted attention from a good many details which ordinarily might have commanded it. There was a huge mass of tumor tissue which measured 5 by 6 by 7 centimeters approximately in the position of the thymus in the anterior mediastinum. That should certainly have given evidence on percussion of the chest, certainly would have shown if an x-ray of the chest had been taken. There was pretty general lymph node enlargement, most marked in the left groin and in the retroperitoneal glands. The veins of the right leg and left arm showed fresh thromboses which I think were infectious in origin. Possibly pressure had something to do with them, too. The brain lesions we have not had time to study thoroughly yet. There were many very minute miliary areas of softening which in sections showed edema and absorption of myelin but no leukocytic reaction, and in the sections there seemed to be thrombi in a few of the smaller vessels. It probably represents another focus of the migrating phlebitis which she had elsewhere. It is a very unusual picture. I have never seen anything like it, and I do not know yet exactly what it is.

ANATOMIC DIAGNOSES

1. Primary disease.
Lymphoblastoma, Hodgkin's type.
2. Secondary or terminal lesions.
Migrating thrombophlebitis, peripheral and cerebral.
Multiple miliary softening of the brain.

CASE DISCUSSION

(Three Months' Pain in the Left Lumbar Region).

(Case 17011, Case Records of Mass. Genl. Hosp., from New Eng. Jour. of Med., Jan. 1, 1931, p. 31).

Case History

This patient was a business man sixty-one years of age who was admitted to the hospital October 20 with a history beginning about seven months before of sudden onset of pain in the left lower back. He was seen by his doctor, who treated him symptomatically. The patient also had some osteopathic treatments. X-ray showed arthritis of the hip joints. After a few weeks the pain disappeared and he seemed to be quite well again.

Then in July he had a sudden onset of cough which his physician described as typical of whooping cough. This lasted for about eight weeks. He also had a fever which continued until the present time. Pus was found in his urine, and persisted through several examinations. Because of this he was sent to a hospital and cystoscoped. Nothing was found to account for the pus.

About three months ago he developed pain in the back so severe that he could neither lie nor sit in comfort. After that had persisted for two weeks he was taken to another hospital by an orthopedic surgeon who had him on a bed with boards. After three or four weeks the acute distress began to subside he was sent home, the fever continuing, but the back pain much relieved. About two weeks before entry he had an attack of severe pain in the left upper quadrant which at first was thought to be due to gas, but because of the persistence of the pain and some spasm the question was raised as to the possibility of a subphrenic abscess. The pain continued up to the time of entrance. The only thing about the gastro-intestinal history was the loss of appetite and the very marked constipation, amounting to obstipation. He had a running fever for five months. Until very recently no cardiac murmurs were heard.

In addition to the above story he gave the history that for two years he had had mild attacks of angina that had disabled him very little. They always occurred on exertion, on stepping out into the cold and after meals, and were relieved if he immediately stopped walking for a moment or two. The attacks were very brief; he never took nitroglycerin for relief. With the onset of fever he began having more severe attacks of angina, requiring nitroglycerin and for some attacks morphia.

He had always been well and strong except for rheumatic fever at the age of twenty-five, but there is no history of any involvement of the heart. He

had passed repeated heart examinations for life insurance companies.

When we examined the man we found him obviously very weak, with marked pallor. The heart was about 9 centimeters, which was for a man of his size well outside the nipple line. There was all the evidence of aortic regurgitation. The blood pressure was 150/40. An electrocardiogram showed normal rhythm, rate 105, slight left axis deviation, slight slurring of the Q-R-S complexes. His left upper quadrant was very painful and tender but beneath the resistance we could feel a mass which we thought was undoubtedly an enlarged spleen. The lower border of the liver was down below the navel. This was very difficult to explain. It was not tender and did not suggest the liver of acute congestive failure. There were no signs in the lung, no edema of the legs. The spine was rigid and almost any movement in bed produced pain referable to the vertebral column. He had in the left fundus a very small hemorrhage suggesting a petechial hemorrhage, but there was no clubbing and no tenderness of the finger tips.

We examined his urine for blood nearly every day for the two weeks he was in the hospital and never found any red blood cells. The leukocyte count was 14,000 to 7,600, the reds 2,800,000 to 2,950,000, the hemoglobin 45, the differential count 78 per cent polynuclears. The stools were negative.

During hi scourse in the hospital he ran a very septic temperature, the highest being 103°. The pulse rate was 90 to 130. The blood pressure was 150/40.

He had repeated attacks of very severe angina, coming more and more often and not relieved by nitroglycerin. He had to have sometimes as many as three quarter-grain doses of morphia to relieve him. On account of the distress due to angina pectoris we kept him morphinized during the last three or four days of life in order to minimize these attacks. Finally on the sixth of November about seven o'clock he had a very severe attack of anginal pain of sudden onset and died.

His x-rays show advanced hypertrophic changes throughout the vertebral column. There was no evidence of any metastatic malignancy in any of the bones.

Discussion by Dr. H. D. Ketcherside, Phoenix

This man undoubtedly died of angina, probably a coronary occlusion; but how can we explain the other symptoms? The most outstanding symptoms were pain in the left lumbar region and left upper quadrant; persistent fever extending over a five months' period; a mass in the upper left quadrant, which was thought to be an enlarged spleen; and an enlarged liver.

Considering the causes of lumbar pain, we find that the great majority of cases can be placed in one of three groups: (1) Infections; (a) local, as tuberculosis of the spine, perinephritic abscess; (b) general, as typhoid, acute endocarditis, sepsis. (2) Orthopedic Lesions; lumbago, sacro-iliac strain, osteoarthritis. (3) Renal; pyonephritis, tuberculosis of the kidney, renal stone, hypernephroma. On account of the long-continued fever and absence of renal symptoms, I believe we can exclude the last two groups in this case, although we know that he did have some osteoarthritis, as shown by x-ray. Considering the local infections, I believe we can eliminate tuberculosis of the spine, since there was no evidence of it in the x-rays. Perinephritic abscess is not so easily eliminated. If it did occur, it was probably a blood-borne infection, and we should look further for the source of the infection. Of the general infections, we shall have to consider typhoid, since this patient had a continuous fever of four months' duration, and a mass which was thought to be an enlarged spleen. His temperature was more of a septic type and he had a high leukocyte count, so I am going to eliminate typhoid.

We are left, then, with acute endocarditis and some form of general sepsis to consider. The heart murmurs were discovered only two weeks before admission and seemed to be confined to the aortic valve, so I do not believe his infection was primarily an endocarditis. I believe this man had a general sepsis, the exact nature of which I am unable to state, but since the onset of fever and cough coincided, I am going to say his trouble started with some respiratory infection, and outline the subsequent events something like this: The infection starting in the lungs, was carried by the blood to the kidney, forming a perinephritic abscess which was near the upper pole and extended upward, forming a subphrenic abscess; or there may have been no perinephritic abscess, but metastatic abscess in liver and spleen.

Discussion by Dr. J. D. Hamer, Phoenix

A subacute bacterial endocarditis would suggest itself as a probable diagnosis in this case. It could account for this patient's prolonged course, the septic type of temperature, the appearance of evidence of a valvulitis, the enlargement of the spleen and liver, the secondary anemia, the leukocytosis. Against this diagnosis, however, is the absence of red cells in the urine, the absence of petechial hemorrhages (except a questionable petechia in the left fundus), and a lack of finger clubbing. But it would be interesting to know the results of a blood culture.

The angina dates back to a period prior to this last illness. At his age, there could be sufficient evidence of changes usually found in anginal cases, in this patient at autopsy, that is, sclerosis of the coronary and other vessels. It is true that the angina was the immediate cause of death, but there were undoubtedly other contributing causes. Coronary embolism or thrombosis could occur in association, or as the result of an endocarditis, with infarct formation, and this could give anginal-like pain also.

The arthritis of the hip joints and spine were chronic affairs, maybe dating back in their beginning to the attack of rheumatic fever twenty-five years previously, and if, at the present time, an acute exacerbation of active septic infection was present, it would be logical to assume that these vulnerable joints would flare up and become actively inflamed and painful again. If this be a case of bacterial endocarditis, it is difficult to explain the portal of entry. His attack of whooping-cough would be very unlikely to be the cause. However, it is seldom possible to determine the portal of entry in any of these cases.

Discussion by Dr. Victor Randolph, Phoenix

Two principal diagnoses in this case appear to be given us gratuitously, i. e., arthritis of the spine and angina pectoris. There is also some hearsay evidence but no exact findings regarding a

renal or genito-urinary condition. The nigger in the woodpile is an enlarged liver and possibly spleen. The former, we are told, has no relation to the heart disease and this statement is supplemented by absence of edema in the extremities, and the statement that there were no signs in the lung. It is insinuated that he had vegetative endocarditis. There was fever for three months which was found to be septic while he was under observation. He had a marked secondary anemia and a supposedly petchial hemorrhage in the retina. We have bed-side witnesses to the presence of aortic disease. We have no evidence that any one thought it worth while to eliminate the most common cause of aortic disease.

Now we have to reconsider the diagnosis given of angina pectoris. It was not relieved by nitroglycerine and therefore was probably more than single angina. The electrocardiograph suggested affection of the ventricular conduction system but did not show coronary occlusion. Nevertheless, the cardiac pain was sufficient to make me think that there was myocardial damage and that the heart condition was the cause of sudden death. I am inclined to think that the diagnosis was not made but that most logical guess as to the diagnosis is vegetative endocarditis of the aortic valve and probably the mitral valve, with chronic infarcts of liver, spleen and heart, possibly an old small infarct of the lung, and also in the kidneys, and a recent infarct of the heart involving the conduction system and causing death.

Discussion by Dr. R. J. Stroud, Tempe

There seem to be too many things wrong with this patient to make a diagnosis. There is no doubt an infection of some kind and he died with an anginal attack, but the spot of infection is obscure.

The salient points in diagnosis are: pain, really of seven months duration; pus in the urine and unaccounted for, constant; angina for two years; fever for five months; enlargement of heart for some time, and later murmurs; leukocytosis, not so high and not constant; anemia, more or less marked; pulse rate high; enlarged liver and perhaps spleen; x-ray showing joint changes in hips and spine. The first pain was felt as a sudden, severe stab over the left kidney. Hard to control, and with changes in the hip joints to x-ray. Was a lot better after being held rigid for four weeks. Evidently a suspicion of tuberculosis or other active joint change was thought of. Then the pain manifested itself in front and opposite the original pain, and later the pain was referred to the spine. Pus in the urine means some infection, and while the hospital examination does not say so, it infers that pus was still present but that no blood was found. No sediment test of the urine was done to find organisms and no culture was made. Constant pus in the urine suggests tuberculosis, or often streptococcus infection, with colon present or absent, at times with both. Fever for five months suggests the three ueual things that cause long continued fevers: tuberculosis, streptococcic infection, and typhoid. As no intermittent fever is described, malaria and other intermittent fevers are ruled out. There has not been any sign of lung tuberculosis and x-ray did not reveal any in the spine. The blood shows anemia but it is secondary. There is enlargement of the heart, presuming an infection, with probably streptococci at an earlier age; and the fact of inflammatory arthritis shows a focus of infection could be present even though not again affecting the joints. The heart murmurs could well be due to myocarditis and still not rule out endocarditis. There are definite joint changes, especially of the spine, showing the effect of some organism, again probably streptococcus. The enlargement of the liver and spleen could mean low-grade infection as well as being the only signs of heart failure. The white blood count is that of a low-grade infection and the lower counts may look like tuberculosis. The real cause of the fluctuation could be a lessening of resistance with periods of ability to increase the leukocytosis, a usual thing in septicemia. Several things are missing. The blood was not tested by culture, neither was the urine. From the above, the best guess is streptococcic infection, probably of the heart valves, with later spread to other organs, and the joints. Septic endocarditis. Septicemia, either from above or from some focus not discovered.

Discussion by Dr. Robt. S. Flinn, Phoenix

The presenting symptom in this case is prolonged unexplained fever. Endocarditis is one of the chief causes of fever of this variety. The appearance of acute arthritis during the course of the fever is of distinct diagnostic significance. The history of an attack of severe left upper quadrant pain strongly suggests infarction of the spleen or kidney. The development of the valvular murmurs which increase in intensity as the condition progresses may be said to furnish final confirmation except for the item of a blood culture, which is almost invariably positive in these cases.

It is true that this case does not present all the classical signs of subacute bacterial endocarditis. The tender sternum, the petechiae, and the erythematous nodules are lacking. Repeated examinations have failed to show the presence of red blood cells in the urine. However, one frequently sees cases of endocarditis in which arthritis is a frequent and dominant feature. The infecting organism is usually the green streptococcus. Petechial hemorrhages are rare, but infarction of the spleen and kidneys is common. As the disease progresses the arthritic manifestations become less prominent, and the heart murmur, which appears late in the course of the disease, increases rapidly in intensity. There is usually a moderate leukocytosis; anemia is usually marked. Endocarditis is not the only cause of prolonged irregular fever and several other conditions must be considered. Miliary tuberculosis might easily produce such a fever as this. The physical examination of the lungs does not help us much. What we should like to see is the x-ray plate, if, indeed, one was made. A moderate leukocytosis is the rule in tuberculosis. A heart lesion, however, is rare. Typhoid fever, malaria and pyelitis must also be ruled out. There is little evidence on which any of these three conditions could be considered. Every differential diagnosis must mention syphilis as the probable cause. Prolonged fever in syphilis is rare. In tertiary syphilis in which gummata of the liver are present, irregular fever is often present, and may simulate to a great extent septic endocarditis. We have several reasons for believing that this man may have had lues. The attacks of angina, the aortic valve lesions, the large liver are all suggestive of a luetic infection. The Wassermann is not recorded, and that valuable bit of evidence is lacking. It must be remembered that the Wassermann reaction is frequently negative in syphilitic aortitis. He

must be extremely timid, who will not diganose syphilis without a positive Wassermann, but in my opinion a diagnosis of bacterial endocarditis is most tenable. With a history of large spleen and liver together with a marked anemia one must think of the various forms of splenic anemia, such as Banti's disease. A large mass in the left upper quadrant may be due to a hypernephroma even in the absence of urinary findings, as I have learned to my sorrow.

It would seem, then, that the diagnosis rests between bacterial endocarditis and syphilis. In favor of endocarditis we have a previous history of rheumatic fever, arthritic manifestations, prolonged unexplained fever, one petechial hemorrhage, probable splenic infarction, marked anemia, and aortic insufficiency developing late in the disease. The development of an aortic lesion in a man past fifty with a previous history of angina is strongly suggestive of syphilis. The Wassermann reaction is less reliable in aortitis than in any other condition. Syphilis easily causes such a condition as this. However, in my opinion the case is more suggestive of an endocarditis, which is, therefore, my diagnosis.

Diagnosis: Bacterial Endocarditis (Subacute?)
Aortic insufficiency.
Splenic Infarction.
Osteo-Arthritis.

Discussion by Dr. Howell Randolph, Phoenix

Attention is first called in this record to symptoms pointing to some pathological condition of the back, which in the light of positive x-ray findings may be considered to be due to a hypertrophic arthritis of the spine. The cardiac manifestations fit into the picture of three different types of heart disease: hypertensive arteriosclerotic, syphilitic and acute endocarditis following a chronic endocarditis. Pain is the most prominent of the cardiac symptoms and is probably due to an actual change in the cardiac vessels rather than coronary spasm. This change is due either to embolism or to arteriosclerotic changes with atheromata possibly syphilitic. Septic temperature, leukocytosis, anemia on top of murmurs corresponding to pan-carditis, point strongly toward septicemia with the primary focus located in the heart, and this is supported by petechial hemorrhage into the fundus of the left eye, liver enlargement with tenderness and enlargement of the spleen. If the Wassermann reaction was positive, I should think more of syphilis as the fundamental pathology, but even then it would seem unusual to have the embolic phenomena on the basis of the cardiac syphilis. I do not think there is any evidence supporting a diagnosis of malignancy. Some blood dyscrasia with severe anemia might be considered, but there is nothing in the whole blood picture to support anything of this nature.

Diagnosis: Subacute bacterial endocarditis superimposed upon an old endocarditis. Hypertrophic arthritis. Cause of death, coronary embolism.

Discussion by Dr. Richard Cabot

(In part, from above journal, p. 32).

The arthritis involved both hips, yet the symptoms were all one-sided. You know that whooping cough is sometimes very serious in old people. People laugh at you; then sometimes you die. I assume that the pain three months and a half before admission was in the same region that we were told about in the beginning, the left side of the back. Swelling and redness of one hand is a queer combination with the other symptoms. There is very little to go on in that history. Things seemed to be localized in the left side of the back and to some extent in the front. One thinks of renal tumors and other tumors of course at his age. But I have still only the vaguest ideas.

The heart examination shows another case of aortic regurgitation. Yet presumably he had a normal heart four months bfeore he entered. That is a surprising state of things. Very few cases of heart trouble at his age come on in four months. Ordinarily such an electrocardiogram as he showed goes with some defect of transmission. That is a pretty big liver. I suppose the record means that the mass moved with respiration. They seem to have felt a tumor in the region where there have been symptoms. There was a well marked secondary anemia.

Dr. George W. Holmes: This man's spine shows marked proliferative changes, and there are similar changes around the hip joints. There is some narrowing of the joint spaces and some punching out of the joint margins, so that there may be some erosion of the cartilage as well as proliferation. There is no bone atrophy. His chest is of interest. The heart shadow is very much enlarged. I do not think that film was taken at a seven-foot distance. It looks as if it were taken with the patient lying on his back, and therefore there is probably a great deal of magnification. The enlargement is all to the left. I think we are safe in saying he had left ventricular hypertrophy. The aortic knob is prominent. There was good respiratory movement of the diaphragm on the right. Sometimes a bad film gives us more information than a good one. The left base was hidden by the shadow of the heart, so that from the x-ray we cannot tell whether or not he has any pathology in the lower left lung. What little evidence we have is against it. The signs they mentioned may have been due to enlarged left ventricle. As to whether this change in the size of the heart is due to aortic regurgitation or hypertension I should not be justified in saying. If it is due to aortic regurgitation, whether it is rheumatic or luetic we could not say. We have no evidence I should say of luetic aortitis. Beneath the clavicle there is an area of increased density with a sharply defined right margin. It does not displace the trachea and apparently is not in the lung. This film is taken with the patient on his back. There is little rotation present, and things are distorted. The shadow may be of no importance.

The kidneys are not visible, but that does not mean anything in particular. The edge of the liver is shown below the ileum. It is thrown down somewhat by the way the film is taken, but there is some evidence of enlargement of the liver. There is no evidence of stone in the kidney. I think a stone would show.

Dr. Cabot: My impression is that the hypertrophic arthritis is simply what might be expected in a man of his age. The particularly valuable part of the x-ray findings seems to be positive evidence of a big heart and the negative evidence as to aneurysm.

DIFFERENTIAL DIAGNOSIS

Dr. Cabot: I think this is an extraordinarily interesting case. It seems to me it is very intriguing in several ways. He was examined four months before he came and the heart was found to be normal.

He had not had an acute rheumatism between then and now. He has a type of chronic degener-

ative arthritis which cannot in my opinion have any relation to the heart.

Syphilitic aortitis does not develop in four months. It takes a much longer time.

Hypertensive heart trouble cannot develop in four months.

What is immediately suggested is subacute bacterial endocarditis, which can perfectly well develop in three or four months and can go on to produce aortic regurgitation and hypertrophy of the heart in that time, though it seems rather rapid. He had fever and secondary anemia, which would go with that diagnosis prefectly well. What about the tumor? If this is a subacute bacterial endocarditis and its results we have to say he has septic emboli which have set something going in the spleen or the left kidney so as to produce an abscess or abscesses in the spleen or the left kidney or both. There is not enough evidence to determine which of these two organs it is, if it is either of those two at all. The record insists twice on the tenderness of this mass, as if infection might be burrowing out beyond the capsule of the spleen or kidney. If it is not that we have to make two diagnoses, one on the heart and one on the spleen or kidney. Statistics show that we are more often right when we account for everything by one diagnosis. We cannot possibly bring aortic regurgitation and the tumor down in the region of the spleen or the kidney under the same heading except through the diagnosis of subacute bacterial endocarditis.

We are never sure of that diagnosis without two complications, bacteremia and definite embolism. The latter may have occurred in the spleen or the kidney. He may also have had it in the retina, in the heel or in the neck, though it is rather hard to imagine exactly where. The negative blood cultures are not of much importance when we consider how large the total blood mass is. Can we account for the fever as a result of a malignant tumor? Yes, especially necrotic tumors often give fever like this. But that would not explain anything about the heart. The thing I feel surest of is a septic cardiac lesion, bacterial endocarditis. If he had that it can account for everything else he had. I think it is a safe diagnosis,—subacute vegetations of the aortic valve (and possibly on the other valves), hypertrophy of the entire heart, especially of the left ventricle, and some septic lesion of the spleen or left kidney; nothing else.

CLINICAL DIAGNOSES (FROM HOSPITAL RECORD)

Angina pectoris.
Subacute bacterial endocarditis.
Infectious arthritis.

DR. RICHARD C. CABOT'S FINDINGS

Subacute bacterial endocarditis of the aortic valve, possibly of other valves; aortic regurgitation.

Septic infarct with abscesses in the spleen or the left kidney.

Hypertrophy of the heart.
Passive congestion of the liver.
Possibly coronary occlusion.

Pathologic Discussion by Dr. Tracy B. Mallory
(P. 33, above journal).

This man had a well marked subacute bacterial endocarditis on top of a slight old rheumatic lesion of both the mitral and the aortic valves, not one that I think would necessarily have caused any symptoms at all. The aortic valve was simply eaten away by the acute process. It is obvious from the gross findings why that regurgitation should have developed with such suddenness. The fresh vegetations were also found on both valves, though only on the aortic did they cause deformity. There was also quite an acute myocarditis.

There were septic infarctions in the spleen and both kidneys, although the softening was limited in each case to a small area at the center of the lesion. Whether the pus in the urine four or five months ago can be explained by the old renal infarct I do not feel at all sure. The mass felt, I feel sure, was the spleen. It weighed 400 grams. The kidneys were not large. The liver was not enlarged. It came down 10 centimeters below the costal margin, yet it weighed only 1500 grams. The reason for that is that he had the sort of liver we have rarealy seen for twenty years, the so-called "corset liver." It was very long and very narrow. There was a marked, rather acute terminal pulmonary edema. There was of course a very marked degree of arthritis.

Recent opinion on the whole is that the etiology of a rheumatic endocarditis and a later bacterial endocarditis is the same. Both start with the presence of organisms on the valve flaps, usually immediately on the line of closure, not on the actual margin of the valve, presumably the area at which the trauma occurs. In a very acute stage of rheumatic endocarditis one can find the organisms, but they have very seldom been seen, probably not in more than a dozen cases. In the later stages of rheumatic lesions we can never find the organisms. The difference between rheumatic endocarditis and subacute bacterial endocarditis depends not on the type of infection on the valve so much as on the general immune reaction of the body. In a rheumatic case the individual is always hypersensitive to streptococci. In bacterial cases the individual never is. From the immunologic point of view he is immune, but it is a peculiar type of immunity which kills the individual. It seems as if we ought to have a new term for it.

ANATOMIC DIAGNOSES

1. Primary fatal disease.
   Chronic rheumatic endocarditis of the mitral and aortic valves; aortic regurgitation.
   Subacute bacterial endocarditis of the mitral and aortic valves.
2. Secondary or terminal lesions.
   Acute myocarditis.
   Dilatation of the heart.
   Septic infarctions of the spleen and both kidneys.
   Hypertrophy of the spleen.
   Pulmonary edema.
   Arteriosclerosis.

CASE DISCUSSION

(Case of Hypertension With Sudden and Unexplained Death).

(Case Records of Mass. Genl. Hosp., from Boston M. & S. Jour., Jan. 19, 1928, p. 1365).

Case Record

A married Englishwoman sixty-two years old entered the hospital November 14 complaining of dyspnea and edema.

Apparently she had been exceptionally well all her life until about two years before admission, when she found she got out of breath much more easily than formerly and was easily fatigued. There was no marked change until ten months before admission, when she caught a bad "cold" which began

as an "asthmatic attack" and lasted all winter. The "asthma" lasted two weeks and was for several hours at a time relieved by inhaling "asthma powders." All winter she had dry cough, usually much worse at night, sometimes waking her and making her sit up. The orthopnea appeared however to have been paroxysmal. Her dyspnea became more pronounced. During the spring, from seven to three months before admission, the cough and dyspnea improved somewhat. Three months before admission the dyspnea again increased in severity. During the summer she had to spend much of her time on a couch. Seven weeks before admission she called a doctor because of dyspnea. He prescribed digitalis, rest and veronal. Six weeks before admission she noticed pitting edema of the legs, loss of appetite, slight constipation and mahogany colored urine. October 8, five weeks before admission, her physician sent her to the Consultation Clinic of this hospital. Examination at that time showed her lips slightly cyanotic, lungs dull at the bases with moist rales at the angles of the scapulae, more on the right, diminished resonance and fremitus at the right base. Gallop rhythm, heart otherwise as upon admission to the wards. Blood pressure 140/120. Radials slightly thickened. Weight 158 pounds. As there was no room in the wards at that time her physician was advised to enforce absolute rest and full digitalization. During the month's interval she had taken a grain and a half of digitalis at first three times a day, then twice a day for most of the remaining time, occasionally only once a day. She did not, however, follow orders for strict rest, but had done a little housework.

Her family history was good. She had been remarkedly healthy all her life. Except for two or three miscarriages, an operation for gallstones twelve years before admission, and arthritis of the finger joints noted seven years before admission, her past history was negative. Three years ago she weighed 165 pounds, her maximum weight. At present she weighed 158 pounds.

Clinical examination showed slightly obese woman (weight 147½ pounds) lying in a Gatch bed with slight pallor, cyanosis of the lips and fingers and considerable orthopnea. Teeth poor; upper teeth false. Chest expansion fair. Lungs clear and resonant. Location of the apex impulse of the heart not recorded. Percussion measurements, left border 13 centimeters, mid-clavicular line 8, right border 4.5, supracardiac dullness 5. Heaving impulse. No murmurs or thrills. Loud second sound. Fibrillation. Electrocardiogram showed auricular fibrillation, rate 120, low T all leads, slight left axis deviation. Blood pressure 180/105, pulse deficit 8 to 43, only twice less than 20. Abdomen full. Old median gallbladder scar. Liver three finger-breadths below the costal margin, slightly tender. A questionable very small amount of free fluid. Slight pitting edema of the feet, lower legs and sacral area. Pupils, fundi and reflexes normal.

Urine: amount not recorded, cloudy at three of five examinations, dark at three, the slightest possible trace to a large trace of albumin at all, specific gravity 1.020 to 1.032; 2 to 30 leukocytes per high power field at all. Renal function 15+ per cent. Blood: leukocytes 20,500 to 10,600, polynuclears 87 to 800 per cent., 6,830,000 to 4,600,000 reds, hemoglobin 80 per cent., moderate achromia, slight variation in size, shape and staining, a few macrocytes with abundant hemoglobin, one nucleated red cell found, platelets normal, reticulated cells 2 per cent. Wassermann negative. Non-protein nitrogen 39. Fasting blood sugar 108 milligrams.

A portable x-ray plate showed the heart shadow considerably enlarged in all diameters. Both bases were hazy, obscuring the outline of the diaphragm. The entire right chest was less radiant than the left.

Temperature 98.8° to 100°, rectal. Apex pulse 77 to 123. Respirations 26 to 38.

Under rest and codein the patient was much more comfortable the day after admission. November 16 she was put on digitaline Nativelle, a French preparation of digitalis. After taking sixteen tablets (approximately 12 grains of the powdered leaf used in this hospital) she became nauseated. Except for anorexia she was feeling much better than at admission. November 18 she was given no digitalis. She felt and ate better. The morning of November 19 she said she felt very weak and a little more dyspneic than usual. At noon she suddenly sat up in bed, gasped, became very cyanotic, and dropped back dead.

Discussion by Dr. Orville H. Brown, Phoenix

The salient points of this record are: A woman, well up to the age of 60, developed dyspnea and undue fatigability. At 61, following a severe cold she became asthmatic, remaining so throughout the winter. The asthma improved but cough remained and the dyspnea was severe. Edema of legs developed, with loss of appetite and mahogany-colored urine. She was given digatalis and evidently she improved, as she was able to go to a clinic for examination about six weeks before death. At that time she had moderate cyanosis, dullness and rales at bases of lungs, gallop rhythm of heart, blood pressure 140/120, moderate arteriosclerosis, and moderate obesity.

Five days before death she was pale, cyanotic and orthopneic. Heart was considerably dilated, with a heaving impulse, and fibrillation. Electrocardiograph showed auricular fibrillation, rate 120, low T from all leads, slight left axis deviation. Blood pressure was 180/105. Pulse deficit was 8 to 43. Liver was enlarged and tender. There seemed to be a small amount of fluid in abdomen and she had pitting edema of feet, legs and sacral area. The urine was cloudy and at times dark, with traces of albumin and pus. Renal function was 15 per cent. Nonprotein nitrogen was 39. The leukocyte count ranged from 10,600 to 20,500 with 80 to 87 per cent polys. The red cells had moderate achromia, with variation in size, shape and staining; there were a few macrocytes with abundant hemoglobin; one nucleated red cell was found; three per cent of reticulate cells. An x-ray disclosed a heart enlarged in all diameters, and the bases of the lungs hazy, with entire right lung less radiant than left. The temperature was 98.8° to 100° rectally, respirations 26 to 38, and apex pulse 77 to 123. The patient improved under digitalis. Four days after admission she felt weak and dyspneic, and at noon sat up in bed, gasped, became deeply cyanotic and died.

There are a number of interesting features in this record. Perhaps the most interesting point is the sudden death. The patient was apparently improved over her condition a few weeks previously, and yet something happened to produce instantaneous death —evidently from the heart. Of the possible causes of such a death, I think of a rupture of an aortic aneurysm, and ruptured heart, angina pectoris,

a ball thrombus from a dilated auricle, and a coronary embolic thrombus. I rule out the aortic aneurysm because none was found by the roentgenogram of the chest. A ruptured heart is not so easy to eliminate. It is my opinion, however, that deep cyanosis would not likely have developed, because the blood returning to the heart by the larger veins would be emptied freely into the chest and probably cardiac contractions would continue for a time, discharging blood into the aorta. Ball thrombi are prone to form in dilated cavities; this patient had fibrillating auricles, which means uncontracted auricles. The heart was dilated in all dimensions, both by physical and roentgen examinations. Conditions conducive to the formation of intra-auricular thrombus existed. A ball thrombus from the right auricle would likely lodge in the tricuspid area and, if not there, in the pulmonary artery. From the left auricle one would probably stick in the mitral area and, if not there, in the aorta. In either event, the flow of blood would be dammed. Cyanosis would be extreme and prompt. Death would be instantaneous. Digitalis might predispose to a contraction of the auricles and a development of the thrombus. It seems to me that a ball thrombus might explain the chain of events in this case.

A coronary embolism from a coronary thrombus may be so large as to occlude a large part of one coronary vessel, and produce instant paralysis of the heart muscle supplied thereby. This patient was of an age to have arteriosclerosis. The heart was dilated so that the sclerosed coronaries must have been considerably stretched, especially in the unsclerosed stretchable areas. All of this would be conducive to the formation of thrombi. Angina pectoris attacks produce sudden death by prompt stoppage of the heart muscle contractions, probably by producing muscle cramps. There was no history that this patient had had anginal attacks. She had, however, a badly damaged cardiac musculature and there always has to be the first attack. The first attack may result in death. Overworked hearts sometimes suddenly cease without any of the preceding causes, probably analogous to angina.

Death from angina or from a coronary embolism would probably produce deep cyanosis, and instant death. I can see no evidence in the record to cause me to decide between the last three possibilities; i. e.: ball thrombus, coronary embolism, and angina. My conclusion, because of its relatively greater frequency, is that this death was from coronary embolism.

Cardiac failure had existed for two years or longer. The outstanding finding was that the heart was much enlarged in all dimensions. An enlarged heart, if discovered by physical examination, is always a dilated heart. It may also be hypertrophied. The custom of speaking of an enlarged heart as a hypertrophied heart, simply because it is found large, is wrong. A cardiac muscle may be thickened as much as ten or even fifteen millimeters and even one most expert on physical diagnosis will not be able to say with assurance that such a heart, if undilated, is enlarged. Hypertrophy, however, exists commonly with dilation. A dilated heart is usually an overworked heart and overwork of a heart will usually produce hypertrophy of greater or less degree. This heart will probably be found to be both dilated and hypertrophied with the degree of dilation far exceeding the hypertrophy unless the heart stopped in extreme systole, in which event the dilation might not be evident. An overworked cardiac muscle results from a variety of causes, chief among which are valvular lesions, and hypertension; obesity, myocarditis, overwork and strain, however, may be the chief or important contributing factors. There may be neither valvular lesions nor hypertension and yet extreme dilation. A heart caused to do work far in excess of that to which it has been trained, will dilate. If again it is caused to do extreme work before it has contracted to normal, it may further dilate or at least it will be prevented from returning to normal size. When excessive work continues indefinitely, with inadequate rest, the heart becomes chronically dilated. At the same time, hypertension or valvular lesions, or both, act as contributing factors to increase the dilations. In the case under discussion hypertension was present and probably had long been in existence. The low pulse pressure indicated the failure of the cardiac muscle to properly do its work. The dyspnea, the enlarged tender liver, the lung edema, the cyanosis and the general edema are further evidence of a failing myocardium. Fibrillation, it is now held, results from poor conductivity of the cardiac tissues because of the severe dilation and stretching of the tissues. A high grade of pulse deficit is a serious omen. A mitral stenosis is likely to cause dilation of the left auricle and, hence, readily lead to fibrillation. The two most common factors leading to fibrillation are mitral stenosis and senescent heart. When the auricle is fibrallating a mitral stenosis may give neither a murmur nor a thrill. Therefore, this case may well have had a mitral stenosis. The strain placed upon the left auricle and, in turn, upon the lung and the right ventricle, produces lung edema and dilation of the right heart. Both of these had probably existed in this case for a considerable period as evidenced by her history. This is additional support to the theory of mitral stenosis. The low pulse pressure is evidence, too, that the blood came through the mitral orifice slowly, as well as proof of a weakened left ventricle. The electrocardiogram shows nothing more than slightly abnormal altered currents with left-sided hypertrophy in excess of the right.

The asthma is an interesting phase of the symptoms on which to speculate. Probably this asthma may properly be termed cardiac because of the preponderating part played in the dyspnea by the failing heart. Any dyspnea has a tendency to develop into asthmatic dyspnea. A severe cardiac dyspnea produces edema and passive congestion of both the lungs and the bronchi. The dyspnea produces forceful expiration and this contributes to a damming back of both blood and lymph into the bronchi during expiration. With congestion of both blood and lymph into the bronchial mucosa a good bed is prepared therein for infection and for sensitization processes. A person who has been seriously ill for a prolonged period is predisposed to digestive disturbances and these readily lead to sensitization phenomena from food. The periodic nature of the asthma suggests that a sensitization process existed. Probably the administration of digitalis relieved the dyspnea sufficiently so that the decided asthmatic character disappeared under that treatment. The kidneys in this case were undoubtedly damaged by the poor circulation and arteriosclerosis, as evidenced by the trace of albumin, the low renal function and the increased nonprotein nitrogen. The pus cells in the urine would scarcely produce the amount of albumin which existed. It is not disclosed whether the urine was obtained by

catheterization, so we can not speculate as to the meaning of the pus cells in the urine. The high leukocyte count and the roentgenograms of the lung probably indicate a beginning pneumonia process. The blood smear shows rapidd blood regeneration as evidenced by the nucleated red cell, the macrocytes, and the cells of variable size and shape, and the reticulate cells. The nucleated cell and the reticulate cells show the urgent demands being made upon the blood-forming tissues. The reticulate cell is a link between the nucleated cell and the erythrocyte. In the cytoplasm of certain cells there is a granular material strung together in the pattern of skins. These make the reticulate cells. In normal blood they never constitute more than 0.8 per cent of the erythroytes. The three per cent in this blood is further proof of rapid blood regeneration. The moderate achromia proclaims anemia. There must have been a severe grade of anemia existing in this case over a considerable period of time. An erythrocyte count and a hemoglobin estimation, would have been helpful in this connection.

As to the type of anemia, one can only speculate. I think especially of pernicious anemia; there are however, no symptoms recorded pointing to myelitis. Therefore, I must conclude that the anemia was of the secondary type, due to chronic infection (the mouth condition was not good), hypothyroidism (she was obese), or to her long-existing poor circulatory condition, or to an idiopathic condition. The fluid suspected of being in the abdomen and the enlarged tender liver propably mean nothing more than cardiac failure. Such conditions, however, result of cirrhosis, abdominal malignancies, and so forth. I see, however, no reason to give these more than passing notice..

Diagnosis:

Immediate cause of death: Cardiac failure, probably from coronary embolism.

Secondary causes: Cardiac dilation and hypertrophy. Mitral stenosis. Bronchial pneumonia. Arteriosclerotic kidney (mild). Secondary anemia.

Discussion by Dr. Frank J. Milloy, Phoenix

I believe we can be reasonably certain that this is a case of heart disease. Of the three kinds of heart disease, rheumatic, syphilitic and hypertensive, I believe it is more likely to be the last. There is nothing in the history to suggest syphilis, and nothing to suggest rheumatic heart disease. It is also rather late in life for a rheumatic heart to show up. So that leaves hypertensive disease, which is by far the most common cause of chronic heart disease today. There apparently has been a gradual onset of cardiac decompensation over a period of two years. The asthma was very probably cardiac in origin, aggravated at times by acute bronchitis. The heart measurements indicate a large heart, possibly at least 500 or 600 grams, and the systolic blood pressure now varying from 120 to 180 means that the patient probably had a much higher pressure before decompensation developed. One unusual occurrence is the absence of any evidence of arteriosclerotic nephritis, which is usually present in hypertensive heart disease. The wide range in specific gravity, from 1020 to 1036, and complete absence of any degree of anemia and normal NPN, leave nothing to indicate much renal damage. The low phthalein excretion is the result of passive congestion caused by decompensation.

The problem in this case is to describe the mechanism of sudden death. We have here a definite case of cardiac decompensation in a woman who has been digitalized and who was apparently very much better, and then, with very little if anything wrong, sudden death occurs. This is not unusual. There are three ways in which sudden death may occur in such cardiac cases. In these large hearts, and especially when fibrillation has been present, the left heart is frequently the seat of a large thrombus; when the heart muscle is whipped up by digitalis and made to contract, it may throw off an embolus from this thrombus and produce a cerebral embolus with sudden death. This is what occurs in sudden death from quinidine sulfate. This is probably not the case here, however, as the patient felt weak and dyspneic the morning of the day she died; there would be no such symptoms of an impending cerebral embolus. The second cause of death is by coronary occlusion; the absence of pain is against coronary disease, but pain is not always present; the electrocardiogram usually shows more evidence of coronary disease than is shown here. I do not see how a coronary occlusion can be either proved or ruled out in this case, except by autopsy. The third mechanism of sudden death is very liable to occur in these cases where auricular fibrillation has been present and there has been a disturbance in the conduction mechanism. The disturbance in conduction may produce a ventricular fibrillation. Death generally occurs very soon. It is diagnosed only if an electrocardiogram is being taken just before such a sudden death. An acute dilatation of the left ventricle occurs, producing death; there may be a feeling of weakness and dyspnea preceding such an occurrence. I believe this was probably the cause of the death in this case.

Diagnosis: Hypertensive heart disease. Hypertrophy and dilatation.

Discussion by Dr. Richard Cabot

(In part, from above journal)

Of course people are very melodramatic in their phrases about the color of urine, as they are about other matters in medicine. If it really were the color of mahogany, it might be a very serious condition and would not be at all likely to come from passive congestion. But one wonders if it is any more than ordinary high colored urine. Examination of the lungs shows all the ordinary signs of passive congestion, probably with some hydrothorax.

What is a heaving impulse? How do you recognize it?

It is a question of the slowness with which the tissues rise. The ordinary impulse comes and goes quickly. The heaving impulse comes slowly and stays longer. Of course the word heaving is not an exact scientific word, but if you are thinking of the kind of thing that goes with hypertrophied heart it is a slow, powerful impulse which may be over a large area or not, but which is ordinarily not called heaving it is sudden. Your description might correspond to the same thing, but you speak especially about the end, about which I have not any particular impression. Heaving impulse is an important thing if you are in doubt about cardiac hypertrophy. It often helps you very much. Only you ought to have it demonstrated to you a number of times. I do not know just why they took that blood sugar. Some of the clinical men are very much interested in the relation between gallbladder disease and diabetes, and it is presumably the fact that she has previously had gallbladder disease.

DIFFERENTIAL DIAGNOSIS

The record reads like that of a straight cardiac case. Certainly there is nothing to prove damage to the kidneys. Here is a woman of sixty-two with cardiac trouble, presumably of the arteriosclerotic or hypertensive type. We have a big heart proved by x-ray and suggested otherwise. We have a moderate amount of passive congestion. We have nothing in the earlier history to make us think anything is wrong with the heart, and that is what we should expect in the type of heart trouble commonest at her age. I do not see how anybody can reason out any other diagnosis than that of hypertension, presumably with arteriosclerosis. I think there will be a big heart, especially the left ventricle, normal valves, kidneys not showing nephritis, but showing probably some involvement in the general arteriosclerotic process which is likely to occur in a case like this.

The blood is a little queer. There seems to be a little secondary anemia judging from the smear, and yet from the figures given you could hardly say so. I do not believe it has any special bearing on the case.

The only thing we can discuss is, Why did she drop dead suddenly? And if you notice how often we do not explain that even after death you will not feel quite so enthusiastic about arguing about it as I used to years ago. More than half the cases of sudden death that I have discussed here have not been explained at necropsy. We say the commonest causes are cerebral hemorrhage, cardiac infarction and pulmonary embolism; but more often than not we do not find any cause. So I should say the first probability is that we shall not find any cause of sudden death. Second, it is perfectly possible she had a cardiac infarction. She had no pain, but perhaps she died too quickly for it. Third, it is possible that she had a pulmonary embolism. She had no symptoms of it, but if embolus was in one of the larger branches there is no reason why there should be symptoms of it. She was cyanotic. She died quickly, with no indication of paralysis. I do not see how we can say cerebral hemorrhage. I can not remember a case of cerebral hemorrhage that died as quickly as this. My impression is that the quick deaths are not often proved to be due to cerebral hemorrhage. So I should say the chances are against cerebral hemorrhage, but that is all I can say.

I think that Dr. Mallory will say that she had arteriosclerotic hypertrophied heart, general passive congestion, some arteriosclerosis of the kidneys, but no nephritis.

As to the possibility of an acute infection as suggested by the leukocytosis, there is nothing particularly worth while to say. There are no physical signs to tell use what infection if any is present, but we know it may be one of two or three without physical signs. As to the cause of sudden death, I have nothing to add.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD).

Arteriosclerotic and hypertensive heart disease.
Congestive failure.
Auricular fibrillation.
Coronary occlusion?

DR. RICHARD C. CABOT'S DIAGNOSIS

Arteriosclerotic hypertensive heart.
Chronic passive congestion, general.
Arteriosclerosis of the kidneys.

Pathologic Discussion by Dr. Tracy Mallory

(From above journal, p. 1367).

The heart weighed 500 grams,—considerably hypertrophied. The valves were entirely negative except for slight sclerotic thickening at the base of each of the aortic cusps.

The coronary arteries were entirely negative. The myocardium showed no sign of infarction. The aorta showed very little arteriosclerosis.

The lungs showed a slight degree of emphysema and considerable chronic passive congestion.

The peritoneal cavity contained considerable fluid, and there was evidence of the old operation in the form of marked adhesions in the gallbladder region.

The gallbladder was still present and presumably the stones had been removed without amputation of the gallbladder.

The liver showed very marked longstanding chronic passive congestion, as did the spleen.

The kidneys weighed 310 grams. The cortex measured from five to seven millimeters. The capsules stripped very easily and left only a few small irregular scars on the surface. The right kidney showed a firm white wedge-shaped patch about one centimeter across the base and extending down half a centimeter into the parenchyma,—the typical appearance of a kidney infarct of considerable standing, since it was not surrounded by a zone of hemorrhage, which we always find with fresh infarctions. So except for the infarcts and the slight degree of chronic passive congestion they were entirely normal kidneys.

Dr. Cabot: What was the cause of sudden death?

Dr. Mallory: None was found.

ANATOMICAL DIAGNOSIS

1. Primary fatal lesion.
   (Primary hypertension.)
2. Secondary or terminal lesions.
   Hypertrophy and dilatation of the heart.
   Chronic passive congestion of liver, lungs and spleen.
   Hydrothorax.
   Ascites.
   Infarct of the right kidney.
3. Historical landmarks.
   Chronic cholecystitis.
   Mucous polyp of the uterus.

CARCINOMA OF THE CERVIX UTERI. Cornelius Oliver Bailey, M.D., F.A.C.P., Dallas, Texas, Tex. State Jour. of Med., Sept., 1920, p. 350.

Thirty per cent of cancer in the female involves the uterus and 90 per cent of uterine cancer originates in the cervix, consideration of this lesion is of great importance. The earliest stages of the disease appear as (1) a hard nodule in the cervical lip, (2) papillary outgrowths from lip or canal, or (3) excavation or cauliflower growth. Cervical cancer involves the pelvic nodes in less than one-third of the cases. Treatment is educational and technical; from the technical standpoint, there is a two-fold problem; eradication of the local lesion and maintenance of body resistance at the highest point of efficiency. The treatment and prognosis is largely dependent on intelligent study of the biopsy specimen, and no line of treatment is justified until a pathological report is available. Method of treatment advocated is usually by four to six thousand milligram hours of heavily filtered radium to cervix and broad ligaments; this is supplemented by medium wave roentgen ray in massive doses over the pelvis by cross fire distribution. Then a "follow up" system is essential to the proper handling of the cases.

PUBLIC HEALTH NOTES

J. ROSSLYN EARP, DR. P. H.
Director, New Mexico Bureau of Public Health

ROCKY MOUNTAIN SPOTTED FEVER VACCINE

Through the courtesy of Dr. R. R. Parker of the Hamilton laboratory, the New Mexico Bureau of Health has secured a small quantity of Rocky Mountain spotted-fever vaccine. This will be kept in the refrigerator of the state laboratory at Albuquerque and will be available to physicians of the state for emergency use only (see paragraph 5 below).

Vaccine for ordinary prophylaxis may be obtained by direct request to the laboratory at Hamilton, Montana. The following points regarding the use of this vaccine are emphasized by Dr. Parker in a letter to the Director of Health:

"1. Requests for vaccine should be addressed to the Officer in Charge, United States Public Health Service, Hamilton, Montana.

"2. Each request for vaccine should specify either the number of persons to be vaccinated or the number of cubic centimeters needed on the basis of 4 c.c. to the person.

"3. Vaccine is furnished to physicians without charge and the charge for administration should be nominal.

"4. The vaccine is very expensive to manufacture and amounts requested should be limited to use which can be foreseen.

"5. Reports received at the Hamilton station suggest that if vaccine is administered soon after a bite by an infected tick a considerable amelioration of symptoms and shortening of the course of infection may result.

Physicians will therefore be justified in recommending the taking of the vaccine by tick-bitten persons as soon as possible after the bite is received.

"6. Therapeutic use of the vaccine after onset of symptoms is not recommended. In sections where the less fatal types of infection occur, some physicians have so used it with supposed good results, but the difficulties which prevent certainty on this point can be readily understood. Results in the highly fatal Bitter Root valley cases have suggested that in the more severe type of the disease, its use may even be harmful.

"7. It is especially requested that the Officer in Charge of the Hamilton laboratory be advised of any cases of spotted fever which may occur in vaccinated persons andd that as detailed a clinical record as possible be kept of such cases."

REPORT OF NEW YORK STATE HEALTH COMMISSION

The preliminary report of the distinguished public health commission that was appointed nearly a year ago by Governor Roosevelt is an important public document.

The Commission, in addition to its Chairman, Dr. Livingston Farrand, president of Cornell University, is composed of the following members: George W. Cottis, M.D.; Simon Flexner, M.D.; Hon. Homer Folks; Edward L. Keyes, M.D.; Mr. John A. Kingsbury; Mrs. Henry Goddard Leach; Hon. Henry Morgenthau; Matthias Nicoll, Jr., M.D.; Mr. John M. O'Hanlon; Thomas Parran, Jr., M.D.; William H. Ross, M.D.; Miss Katherine Tucker; and Linsly R. Williams, M.D.

The findings of such a committee must be attentively studied by physicians and social workers in every state. Although it is true that the local needs of New York State have been the subject of the commission's survey, nevertheless their estimate of the needs of their state will fit very closely our own estimate of public health needs in the Southwest. They are as follows:

"(1) Effective local health departments with qualifiedd personnel, (2) more effective service in the control of tuberculosis, cancer and the venereal diseases, (3) more comprehensive measures to reduce infant deaths and deaths among mothers from causes incident to childbirth, (4) further coordination of school hygiene with other health services, (5) better organization for the discovery and cure, hehabilitation and care of crippled children, (6) the extension of public health nursing throughout the state to reach the standards now in effect in a few areas, (7) protection of the public health through additional safeguards in the purification of water supplies and the prevention of stream pollution, (8) more attention to the growing problem of industrial hygiene."

Whole-time county health officers are recommended for all counties with a population of 30,000 or more and for smaller counties there should be available, without cost, the services of a district health officer or other member of the state staff who will act as a county health commissioner for one or more of these counties.

In discussing the qualifications needed for the position of county health officer, the commission believes that eventually a full resident year of study in public health should be required as well as public health experience on a whole- time basis. The commission realizes however that this standard cannot be enforced at the present time. Other recommendations are that the law be amended to provide for treatment of the venereal dis-

eases as a public health problem, irrespective of whether or not the individual case be indigent or infectious. A division of cancer control is to be established. Increased accommodation is to be provided for the tuberculous. In detail some of these recommendations are applicable only to a wealthy state but in general outline they set a model which every state will do well to study.

PUBLIC HEALTH NOTES

J. ROSSLYN EARP, Dr. P. H.
Director, New Mexico Bureau of Public Health Health Education

The fol'owing newspapers have asked for educational material on public health:

Independent, Mountainair, N. M.; Tribune, Lovington, N.M.; Journal, Albuquerque, N. M.; Portales Valley News, Portales, N.M.; Independent, Silver City, N. M.; Morning Dispatch, Roswell, N. M.; Chronicle, Carlsbad, N.M.; Advocate, Artesia, N. M.; Advertiser, Alamogordo, N. M.; La Bandera Americana, Albuquerque, N. M.; Gate City Sun, Raton, N. M.; Review, Grant, N.M.; Independiente, Las Vegas, N. M.

Physicians will oblige the Bureau by cooperating in the promotion of this service. Send us clippings of articles which appear. Send us your criticisms of the articles which appear and suggestions for future articles. If you local paper is not included in the above list, see the editor and ask him if he would not like to print feature stories prepared (in English or Spanish) by the Bureau. Ask if he could not use mats, purchased (including the copyright) by the Bureau from the American Public Health Association for the use of the newspapers of New Mexico.

New Mexico Pub'ic Health Association

The seventh annual meeting of the New Mexico Public Health Association will be held on May 11 and 12 at La Fonda Hotel in Santa Fe. Registration will be at 9 A. M. on May 11. An interesting program, leaving ample time for free discussion, has been arranged. Dr. Walter Clarke, chief of the division of medical measures of the American Social Hygiene Association, is coming from New York to discuss the control of venereal diseases in a rural community. Dr. Clarke was formerly editor of the section on venereal diseases of the International Journal of Public Health and was connected with the Social Hygiene Association for some years before he won honors in the medical school of Edinburgh University. He is certain to have valuable suggestions and counsel on a very difficult problem.

Membership in the New Mexico Public Health Association is not restricted to health officers. It is hoped that all physicians interested in the public health—and that should include all who subscribe to Article 2 of the Constitution of the American Association—will join the Public Health Association and make an effort to attend its annual meetings. A program will be sent to any physician upon request.

Immediately following the meeting of the State Public Health Association, the public health nurses of the state will hold their meeting at La Fonda Hotel on May 13th. Registration will take place at 9 A. M. An excellent program has been arranged and the nurses are urged to take this opportunity to get together for free discussion. A round table session will be held in the afternoon at which time all public health nurses are invited to present their suggestions and problems. Printed programs will be mailed upon request.

NOTICE TO ARIZONA PHYSICIANS

A History of Arizona Physicians and Arizona Medicine is in the course of preparation by a member of the editorial staff of Southwestern Medicine for the purpose of supplying data of Arizona medicine for inclusion in a History of Medicine of the United States now being prepared.

The task will be greatly lightened if each Arizona physician and former Arizona physician, will supply data on himself, following the outline given below.

The data on deceased physicians will be difficult to obtain unless those who have such data will be good enough to supply it.

It is to the interest of all that each physician supply full data upon himself and upon the deceased members he may have known.

Outline for data:

Name in full.
Date of birth. Father's occupation.
Place of birth. Father's nationality.
Name of father. Mother's nationality.
Places and dates of your residence.
Educational institutions attended and years; degrees obtained.
Church affiliation.
Date of marriage.
Wife's maiden name.
Names and ages of children.
License to practice in what states; dates of such licenses.
Places and dates of medical practice.
Medical publications, places and dates of publication.
Other medical activities.
Other activities and data of interest.
Specialty practiced.
Present address of residence; office.

Please enclose recent photograph, with data to Southwestern Medicine, Box 1587, Phoenix, Arizona.

Southwestern Medicine

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Published monthly for the Board of Managers of the four constituent societies.

VOLUME XV. APRIL, 1931 No. 4

EDITORIAL STAF

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DR. WILLIAM C. TODT

The Arizona State Medical Association has lost a member unsurpassed in loyalty and faithfulness, in the death of Dr. William C. Todt of Kingman. For many years he served as councilor for the northern district, and left his impress by organizing and bringing to successful consummation the only councilor district meetings yet held in the state.

At the meeting in Phoenix, last year, he was made Vice President, and was in direct line for the highest office in the gift of the Association, when death claimed him on April 13th, at the home of his sister, in Phoenix.

While in poor health during the winter, most of which he spent in Phoenix, this outcome was not expected, and the entire medical profesion of the state mourns this passing of friend and confrere.

Formal resolutions to be introduced at the forthcoming meeting of the Association in Nogales will be published next month.

NOGALES, THE CONVENTION CITY

(By Chamber of Commerce)

Nogales, uniquely situated astride the borderline, is an ideal convention city, having 8,500 people on the American side with modern hotels, meeting halls and other accommodations adequate for such meetings, and with Nogales, Sonora, "just across the street," a modern city in many respects, but still a quaint Spanish town with many enjoyable attractions.

This city, the third largest in the state, commercially, is also the largest port of entry on the entire Mexican border and for that reason we are indeed glad to be the host to the many conventions which visit our city. We are glad to have people come to Nogales so that they may see for themselves the opportunities which we have to offer and also so that they may know of the trade area which our city serves.

The West Coast of Mexico comprises the States of Sonora, Sinaloa and Nayarit and has approximately one-half of the wealth of the entire Republic and one-third of the population. Numerous thriving enterprises in this area are either owned or financed by American capital who have established residences in Nogales.

Historically, the very spot where Nogales is now situatedd had been traveled over and explored before the Revolutionary war. Father Kino had established his chain of missions throughout northern Sonora and

one of the remnants of his wonderful piece of work still remains just nineteen miles north of Nogales. Tumacacori Mission is now a National Monument presided over by Mr. George L. Boundy, a full-time custodian, who will be more than glad to give the visiting tourists full information regarding this historical spot.

Four miles further north is the little town of Tubac, once a famous Spanish presidio from which Captain Juan Bastante de Anza led his troops and settlers to the Golden Gate, founding the city of San Francisco. Also, in this same little town was established the first printing press west of the Rockies and the first mining claim west of the Rockies was filed in Tubac. Over this very same

Tumacacori Mission, 19 miles North of Nogales on Nogales-Tucson Highway

ground Coronado led his gallant forces seeking the Seven Cities of Cibola. Arizona Highway No. 82 has been named in honor of this valiant explorer as the "Coronado Trail," and it is probably the most scenic route in southern Arizona. Along this same route are found Fort Buchanan, Fort Mason and other forts of a later period but established by Indian fighters and have long since been abandoned.

We, in Nogales, are indeed glad to have conventions visit our city. We want them to enjoy our many historical and scenic attractions, and if time permits, it would be our pleasure to make all necessary arrangements so that a short fishing trip down the West Coast of Mexico to Guaymas might be included. This would take in the capital of the state, Hermosillo. This route is to be known as the International Pacific highway and is now in the course of construction, approximately one mile a day being opened for travel and by September first, will be one of the best highways in Mexico and on a par with any gravel roads in Arizona.

Montezuma Hotel—Registration Headquarters

NEWS ITEMS

DR. CHARLES W. SULT, of Phoenix, took over the office of State Superintendent of Public Health on April first, succeeding Dr. R. J. Stroud, of Tempe. Dr. Sult, following his appointment, visited some of the health departments in eastern states in order to familiarize himself with their methods.

DR. R. B. RANEY, of Phoenix, has been appointed local registrar of vital statistics for the district comprising the city of Phoenix.

DR. W. K. WYLDER, of Albuquerque, attended the American College of Physicians in Baltimore the last week in March. This is the fifth consecutive meeting of the College which Dr. Wylder has attended.

DR. FRED G. HOLMES, of Phoenix, attended the conference and convocation of the American College of Physicians, in Baltimore, in March, where he was received into Fellowship.

ARIZONA PHYSICIANS IN AMERICAN COLLEGE OF PHYSICIANS

The Fifteenth Annual Congress of the American College of Physicians was held in Baltimore March 23 to 28, and was the largest and best meeting yet held by the organization. Dr. W. Warner Watkins of Phoenix, member of the Board of Governors of the College, and Dr. Fred Holmes of Phoenix, attended the conference. Fellowship was conferred on the following clinicians from Arizona, at this meeting: Dr. E. W. Phillips, of St. Luke's Home, Phoenix; Dr. Frank J. Milloy, of the Southwest Clinic, Phoenix; Dr. Fred Holmes of Phoenix; Dr. Orville H. Brown of Phoenix; Dr. Fred T. Fahlen of Phoenix; Dr. Harlan P. Mills, of the Pathological Laboratory, Phoenix; Dr. S. C. Davis, of the Thomas-Davis Clinic, Tucson.

There were also elected as Associates in the College the following clinicians of Arizona: Dr. Virgil G. Presson, Tucson; Dr. Jesse D. Hamer, of Phoenix; Dr. Robt. S. Flinn, of Phoenix; Dr. Howell Randolph, Phoenix.

The 1932 Conference will be held in San Francisco, the first time the meeting has come west of the Mississippi River. Dr. Watkins was re-elected member of the Board of Governors for another three year term. A summarized report of the scientific papers will be made in a forthcoming issue of this journal by Dr. M. K. Wylder, of Albuquerque.

ERRATUM

In our notes published in the February issue (page 89) Vitamin E was erroneously given as the synonym for the P-P factor of Vitamin B. The proper synonym for the P-P factor is Vitamin G. Vitamin E is the factor apparently needed for full fertility in certain animals.

40th Annual Meeting
Arizona State Medical Association
Nogales, May 7, 8 and 9

Registration headquarters will be at the Montezuma Hotel. Every member, visitor and guest is requested to register promptly on arrival.

Scientific sessions will be held in the Armory. Morning sessions start at 10 o'clock and afternoon sessions at 2 o'clock.

No address or paper before the Association, except those of invited guests, shall occupy more than twenty minutes. The opening discussions are limited to five minutes and general discussions to three minutes each. No one shall speak more than twice on the same subject.

Papers read before the scientific sessions shall become the property of the Association and shall be deposited with the secretary for publication in the official organ of the Association (Southwestern Medicine).

For the social entertainments, see the special announcements elsewhere in this program.

Officers

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JOSEPH MADISON GREER - - - - Phoenix
President-Elect:
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Vice-President:
*WILLIAM C. TODT - - - - - - - Kingman
Secretary:
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C. E. YOUNT - - - - - - - - - Prescott
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* Deceased.

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R. D. KENNEDY - - - - - - - - - Globe
D. F. HARBRIDGE, *Secretary* - - - Phoenix

COUNCIL MEETING

Thursday, May 7th, 9 A. M.

HOUSE OF DELEGATES

Executive Session, Friday, May 8th, 9 A. M.
Executive Session, Saturday, May 9th, 9 A. M.
Open Meeting, Saturday, May 9th, 3 P. M.

Members of Council

President, J. MADISON GREER - - - - Phoenix
President-Elect, H. A. REESE - - - - - Yuma
Past President, SAMUEL H. WATSON - - Tucson
Treasurer, C. E. YOUNT - - - - - - Prescott
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W. W. WATKINS - - - - - - - - - Phoenix
C. A. THOMAS - - - - - - - - - - Tucson

House of Delegates

Cochise County	3
Coconino County	1
Graham County	0
Greenlee County	1
Gila County	2
Maricopa County	11
Navajo-Apache County	1
Pima County	6
Santa Cruz County	1
Yavapai County	2
Yuma County	1
Mohave County	1
Members of Council	8
Total	38 Members

PROGRAM

THURSDAY, 10 A. M.

Invocation:
REV. J. L. PATTON - - - - - - - - Nogales
Addresses of Welcome:
MAYOR HARRY J. KARNES - - - - - Nogales
PRESIDENTE A. C. VILLASENOR, Nogales, Son. Mex.
Responses:
ROBERT FERGUSON - - - - - - - - - Bisbee
E. E. PRIEGO - - - - - Nogales, Son. Mex.
Introduction of President-Elect:
President's Address:
HARRY A. REESE - - - - - - - - - Yuma
Greetings:
T. J. MCCAMANT - - - - - - - - El Paso, Tex.
Fraternal Delegate of the Texas State Medical Association.
WM. L. BELL (*Guest*) - - - - - - - Oakland
"What Constitutes a Modern Bone Surgeon"
JOHN H. WHITE - - - - - - - - - Phoenix
"The Healing of Myocardial Infarcts"
Discussion opened by
CHAS. S. KIBLER, Tucson.
R. K. SMITH - - - - - - - - - - Tucson
"Prenatal Care."
FLOYD B. SHARP - - - - - - - - - Phoenix
"Birth Injuries to the New Born."
Discussion on papers of Drs. Smith and Sharp opened by
C. E. YOUNT, Prescott.
CHAS. W. BROWN (*Guest*) - - San Diego, Calif.
"Bronschoscopic Diagnosis and Treatment, Including Foreign Bodies." (Lantern Slides.)

FRIDAY, 10 A. M.

JOHN HOMER WOOLSEY (*Guest*) - San Francisco
"Surgical Problems of Usual and Unusual Gastric Lesions."
C. A. THOMAS - - - - - - - - - - Tucson
"Head Injuries."
Discussion opened by
R. B. RANEY, Phoenix.
JOHN W. FLINN (*Invitation*)
"Special Treatment of Pulmonary Tuberculosis."
Discussion opened by
SAMUEL H. WATSON, Tucson.
ORVILLE H. BROWN - - - - - - - - Phoenix
"Successful Treatment of Eczema, Urticaria, Angioneurotic Edema, Etc., by Dietary Regulation and Digestants."
Discussion opened by
R. A. WILSON, Tucson.
OSCAR S. BROWN - - - - - - - - - Winslow
"Trachoma" (Lantern slides.)
Discussion opened by
HARLEY YANDELL, Phoenix.
THOMAS BURGER (*Guest*) - - - - - San Diego
"The Newer Anesthetics."
A. P. KIMBALL - - - - - - - - - - Yuma
"Spinal Anesthesia."

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E. Payne Palmer and Dudley Fournier - Phoenix
"Sodium Amytal in Surgery and Obstetrics."
Discussion on above two papers opened by:
Harry Carson, Phoenix.
D. F. Harbridge - - - - - - - - - - Phoenix
"Retinal Vascular System."
Discussion opened by
Charles Smith, Nogales.

SATURDAY, 10 A. M.

James Marr Bisaillon (*Guest*) - Portland, Ore.
"End Results Following Intrapleural Pneumolysis."
E. A. Gatterdam - - - - - - - - - Phoenix
"Atelectasis (Massive Collapse) in Tuberculosis"
Discussion opened by
Howell Randolph, Phoenix.
W. Claude Davis - - - - - - - - - Tucson
"A Study of Intestinal Tuberculosis."
Discussion opened by
Frank J. Milloy, Phoenix.
Calvin Eaton - - - - - - - - - - Yuma
"Agranulocytosis"
Discussion opened by
Harlan P. Mills, Phoenix.
E. E. Priego - - - - - - - Nogales, Son. Mex.
"Tetanus Following Hemorrhoidectomy."
(Translated by V. A. Smelker, Nogales.)
Discussion opened by
E. C. Houle, Nogales.
R. D. Kennedy - - - - - - - - - - Globe
"Clinical Demonstration Fractures."

Entertainments

THURSDAY

Ladies

7:00 P. M. Buffet Supper followed by Bridge at home of Mrs. A. L. Gustetter, President Ladies Auxiliary, 420 Crawford Street.

Men

7:00 P. M. Smoker.

FRIDAY

Ladies

12:00 Noon Luncheon, Episcopal Church, Crawford Street.

Men

12:00 Noon Barbecue Luncheon.
7:00 P. M. Dinner Dance for Doctors and their Ladies.

ARIZONA PUBLIC HEALTH ASSOCIATION PROGRAM

Fourth Annual Meeting—Nogales

MAY 5 and 6, 1931

TUESDAY, MAY 5

12:00 M. to 2:00 P. M.—Registration.

General Meeting, 2 P. M.

Addresses of Welcome:
Mayor H. J. Karnes.
Presidente A. C. Villasenor.
Announcement of Arrangements for Meetings.
Introduction to Members.
Anna I. Nettle, M. D.
"Indians as a Public Health Problem."
A. L. Dopmeyer, P. A. Sanitary Engr., U. S. P. H. S.
"Water Supply and Sewage Disposal Problems on Indian Reservations."
Benson Bloom, M. D.
"Clinical Review of a Dysentery Outbreak."
John Mote,
"Laboratory and Epidemiological Study of a Bacillary Dysentery Outbreak."
Dana E. Kepner, Sanitary Engineer,
"Camp Sanitation in Colorado."

6:30 P. M.

Dinner and Annual Meeting of the Arizona Public Health Association.

8:00 P. M.

Public Meeting: Public Health Motion Pictures.
1. How Biological Products are Made, Parke, Davis & Co.
2. Mosquito Film, University of California.
3. "In a Drop of Water" and
4. "The Fly," Sol Lesser Company.

WEDNESDAY, MAY 6.

Health Officers' Section

Chas. W. Sult, M. D.—"State Board of Health Program."
R. J. Stroud, M. D.—"Epidemiology of Epidemic Meningitis."
A. C. McKean, M. D.—"Outbreak of Meningitis in Gila County."
G. Fasting, M. D.—"Identifying Clinical Suspects and Carriers."
H. Bocock, R. N.—"Nurses' Part in Controlling Meningitis."
J. C. Hicks, D. V. M.—"Antirabic Vaccine for Dogs."
C. L. Harrell—"County Sanitary Inspection."
E. Braddock, R. N.—"Progress in Yavapai County Rural Health Work."
Olive A. Beagan, R. N.—"School Nursing."
Ida Klount, R. N.—"Acitvities of Maricopa County Unit."
State Superintendent of Public Health,
Round Table Discussion of Administrative Problems.

Water and Sewage Section.

C. C. Kennedy—"Proposed Sewage Treatment Plant for Phoenix."
Dario Travaini—"Operation of Miami Imhoff Tanks."
R. F. Goudey—"Reclaiming Water for Industrial and Agricultural Purposes."
Dr. Carl Wilson—"Los Angeles Plan for Reclaiming Water."
G. Marx—"Three Years Operation of Tucson Separate Sludge Digestion Plant."
G. T. Luippold—"Sewage Chlorination for Disinfection and Odor Control."
R. Gilbert—"Improving Miami's Water Supply."
P. Robinson or R. Benzie—"Development of Water for the Southern Pacific."
W. J. Jamieson—"Extension of Phoenix Distribution System."
R. A. Hill—"Determining Source of Municipal Water Supply."
P. Martin—"Well Construction."
Motion Picture of Manufacture of Cast Iron Pipe.

Dairy Inspectors' Section.

R. N. Davis, Univ. of Ariz., Dairy Dept.—"Testing Dairy Herds for Contagious Abortion."
E. L. Stamm, D. V. M.—"Relation of Undulant Fever to Milk Consumption."
J. C. Hicks, D. V. M.—"Cooperation in Dairy Inspection."
J. Waldron—"New Dairy Code."
Paul Cromer—"Milk Inspection in El Paso."
D. W. Fountain (presiding)—"Question Box" (for all dairy inspectors in Arizona).
Visit to Nogales Dairies and milk plants.

6:30 P. M.

Dinner for Health Officers' Section; C. E. Irvin, M. D., presiding.
Industrial Health Hazards of Copper Mining Industry, by F. V. Meriweather, Industrial Hygiene Division, U. S. P. H. S.
Discussion by Dr. Robert Flinn.
Discussion by Dr. F. F. Miller.

MAY WE HELP
TO CLEAR UP A

CONFUSION

REGARDING THE
PRESCRIBING OF
GELATINE?

WHEN you prescribe gelatine (for the diabetic diet, as an example) you want your patient to *get* gelatine—real, pure, plain gelatine, free from sugar, coloring and flavoring content. There is a fundamental difference in gelatine — a plain gelatine, such as Knox, is a pure protein—entirely free of sugar. The ready-mixed gelatin dessert mixtures contain 85% sugar, coloring and flavoring, *and* less than 10% gelatine. Therefore, may we recall to your attention the advantages in specifying *plain* gelatine! May we suggest that a sure way to guarantee to your patients that they will get this plain, pure gelatine you want them to have is to prescribe Knox Gelatine—(on which extensive medical research work was done exclusively) — the gelatine that for over forty years has been the highest quality for health.

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City..... *State*.....

PROGRAM
of
New Mexico State Medical Society
Albuquerque—1931 Session
Alvarado Hotel
May 20, 21, 22

Announcements

Registration headquarters will be in the Alvarado Hotel.

Every member, visitor and guest is asked to register promptly upon arrival.

Scientific and business sessions will be held in the assembly room at the Alvarado Hotel on Wednesday, Thursday and Friday and at the Country Club, Thursday evening.

General discussions limited to three minutes. No one shall speak more than once on the same subject.

Papers read before the scientific sessions shall become the property of the Society and shall be deposited with the secretary for publication in the official organ of the society (Southwestern Medicine).

Bring your wives. The Ladies Auxiliary of the Bernalillo County Medical Society are prepared to entertain the wives of visiting physicians.

Dinner Dance at the Alvarado Hotel, Wednesday evening.

Smoker at the Country Club, Thursday evening.

Noon day Luncheons at the Alvarado Hotel, Wednesday, Thursday and Friday.

Officers

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Program

WEDNESDAY, MAY 20.

Opening Session—
8:00 A. M. Meeting of Council—Assembly room Alvarado Hotel.
8:30 A. M. Meeting House of Delegates—Assembly room Alvarado Hotel.

Scientific Session, 10:00 A. M.

Invocation—REV. GEO. J. WEBER.

1. Address of Welcome - DR. JAMES F. ZIMMERMAN President of University of New Mexico
2. Reply to Address of Welcome....DR. E. W. FISKE Santa Fe
3. President's Address - DR. MELDRUM K. WYLDER Albuquerque, New Mexico.
4. DR. R. J. GROOM - - - - Santa Rita, N. M. *"Some Comments on Surgery by an Internist"*

NOON—Luncheon Alvarado Hotel

Address—ATTORNEY H. CLARKE, of Gillett & Clarke Denver, on *"Physician's Liability."*

Afternoon Session—1:30 P. M.

1. DR. HUGH JONES - - - Los Angeles, Calif. *"Plastie Reconstructive Surgery of the Extremities."*
2. DR. T. E. CARMODY - - - - - Denver, Colo. *"Some Points in Bronchoscopy."*
3. DR. WILLIAM C. FINNOFF - - Denver, Colo. *"The Relation of Ophthalmology to General Diseases."*
4. DR. S. D. SWOPE - - - - - El Paso, Tex. *"Brain Injuries."*
5. Skin Clinic—
   DR. GEO. P. LINGENFELTER - Denver, Colorado
   Prof. Dermatology & Syphilis,
   University of Colorado

WEDNESDAY EVENING

DINNER DANCE—Alvarado Hotel, 7:00 P. M.

THURSDAY, MAY 21.
Morning Session—9 O'clock

1. DR. JOHN W. AMESSE, President of the Medical Society of the City and County of Denver. *"Sources of Infant and Maternal Mortality in Western States."*
2. DR. JAMES VANCE - - - - El Paso, Texas *"Personal Observations of Cholecystitis."*
3. DR. DAN G. STINE, Prof. Internal Medicine, University of Missouri, Columbia, Mo. *"Hypertensive Disease."*
4. DR. FRANK RIDGE - - - - Kansas City, Mo. *"Modern Diagnostie Methods."*

NOON—Luncheon Alvarado Hotel

Afternoon Session—1:30 P. M.

Meeting of House of Delegates.
Election of Officers.

Scientific Session—1:30 P. M.

1. CURTICE ROSSER, M.D., F.A.C.S. - Dallas, Texas Prof. Proctology, Baylor University College of Medicine. *"The Diagnosis and Management of Rectal Cancer."*
2. DR. NATHANIEL H. BRUSH - Santa Barbara, Cal. *"The Treatment of Delirium Tremens."*
3. DR. M. J. GEYMAN - - Santa Barbara, Calif.. *"Roentgen Diagnosis of Gastro-intestinal Lesions."*
4. DR. VERNE C. HUNT - - Los Angeles, Calif. *"Surgieal Treatment of Peptic Ulcer."*
5. PROF. FRED W. ALLEN JR. - - - - , University of New Mexico. *"Intestinal Parasites."*

THURSDAY EVENING SESSION
COUNTRY CLUB—8:00 O'Clock

1. DR. JOHN W. AMESSE, President of the Medical Society of the City and County of Denver. *"Wm. Beaumont, America's First Contribution to World Medicine."*

SMOKER

FRIDAY, MAY 22
Morning Session—9 O'clock

1. CURTICE ROSSER, Prof. Proctology Baylor University College of Medicine, Dallas. *"Odds and Ends in Proctologic Practice."* With Lantern Slide Illustrations.
2. DR. R. E. MCBRIDE - - - Las Cruces, N. M. *"The Serum Treatment fo Pneumonia."*
3. DR. P. L. TRAVERS - - - - - Gallup, N. M. *"Tribromethyl Alcohol Anesthesia."*
4. DR. C. G. GELLENTHEIN - - Valmora, N. M. *"A Resume of Diet Therapy."*

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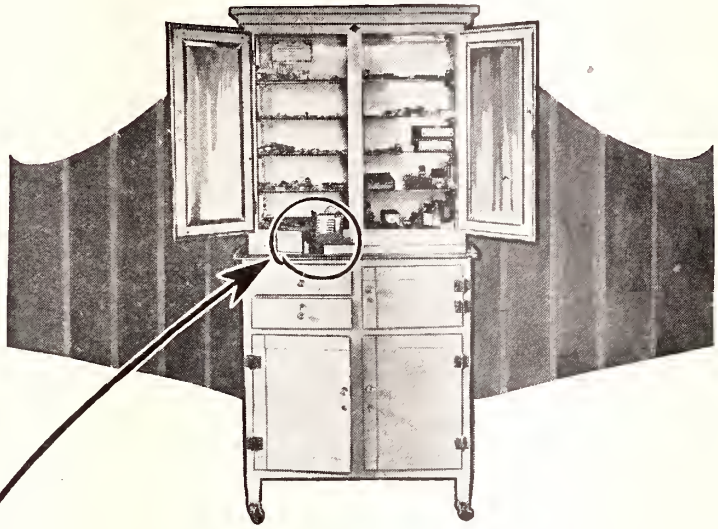

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Afternoon Session—1:30 P. M.

1. DR. W. R. WASHBURN - - Fort Bayard, N. M.
   "Etiology Graves' Diseases."
2. DR. R. A. DUNCAN - - - - Amarillo, Texas
   "Chronic Frontal Sinusitis."
3. DR. M. E. CULPEPPER - - - Carlsbad, N. M.
   "Septic Sore Throat."

General Session, 3:00 P. M.

Report of House of Delegates.
Resolutions.
Good of the Profession.
Adjournment.

SECTIONAL MEETING OF AMERICAN COLLEGE OF SURGEONS

The most pretentious sectional meeting of the American College of Surgeons yet held will be the meeting in Oakland, Calif., April 23 to 26. This sectional conference includes the states of California, Arizona, Nevada, Utah, Idaho, Washington, Oregon and British Columbia. The headquarters will be at the Oakland Hotel. Detailed programs have already been distributed to all the Fellows of the College in the states named and many from Arizona are planning to attend. There will be surgical clinics at the local hospitals, round table conferences, clinical addresses by visiting surgeons and community health meetings. Among the eminent surgeons who will take part in the conference may be mentioned the following: C. Jeff Miller of New Orleans, President of the College; Franklin H. Martin of Chicago, Director General of the College; Charles H. Mayo of the Mayo Clinic; George W. Crile of Cleveland; Allen B. Kanavel of Chicago, President-Elect of the College; Vilray P. Blair of St. Louis; Burton J. Lee of New York; Louis H. Clerf of Philadelphia; Harry M. Richter of Chicago; Harvey J. Howard of St. Louis, and others.

Request for reservations should be sent directly to Dr. Charles A. Dukes, 426 17th St., Oakland, Calif.

EUROPEAN CLINICS
SUMMER—1931

A co-operative tour of European clinics is being offered this year under the auspices of seventeen State Medical Journals.

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The list of men in Europe who are making all local arrangements in each place for the members of our party is as follows:

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HOLLAND

Dr. Jan Shoemaker, Head of the Shoemaker Clinic in The Hague, asisted by Dr. W. H. Teupken.

BERLIN

Dr. Max Boehm, Medical Advisor of the German Government.

LEIPZIG

Dr. Wilhelm Lange, Director of the Nose and Ear Clinic of the University and of the new Pathologic Anatomical Institute.

DRESDEN

Dr. Otto Rostoski and Dr. Hans R. Bahrdt, Professors in the University and Chief Surgeons of the Municipal Hospital.

PRAGUE

Professor Arnold Jirasek, Professor of Surgery in Karlova University.

VIENNA

Hofrat Dr. Anton Eiselsberg and Hofrat Dr. Julius Wagner-Jauregg, Professors in the University of Vienna.

MUNICH

Professor Dr. Erich Lexer, Director of the Institute of Clinical Surgery and Professor Dr. Friedrich Mueller of the Medical Faculty.

ZURICH

Professor Dr. Otto Veraguth, Dean of the University.

BERNE

Dr. Karl Wegelin, Dean of the Medical Faculty. A cordial welcome from Dr. De Quervain.

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PARIS

Dr. Henri Hartmann, Professor of Surgery in the University of Paris and President of the National Committee on the Development of Medical Connections.

This list could not easily be improved upon.

RADIOLOGICAL CONGRESS

The week in Paris coincides with the meeting of the International Radiological Congress. President Dr. Becler has expressed a genuine interest in having our members visit the Congress. The Congress will be comprised of six different sections, as follows:

1. Radio physics.
2. Radio biology.
3. Radio diagnostics.
4. Radio therapy.
5. Medical electrology.
6. Natural and Artificial Heliotherapy.

The following questions will be analyzed:

1. Radiological examination of the Alimentary Canal.
2. Radiologic examination of the Urinary Tract, with concrete illustration.
3. Treatment of Cancer.
4. Radiotherapy of Inflammatory Diseases.
5. Electrotherapy Diathermic of Inflammatory diseases.

There will be an elaborate exhibit organized in connection with the Congress. Members who desire to take part in the festivities and receptions in connection with the Congress should send their subscription in advance to the Secretary of the Congress, Dr. Ledoux-Lebard, 122 Rue de la Boetie, Paris (VIII). The subscription is 300 francs ($12) for official members attending the Congress and 50 francs ($2) per person for those accompanying members.

In each case a conference of thirty minutes' duration will be held in the presence of the whole assembly and members of the Congress are cordially invited to bring forth the results of their personal experience on the different subjects involved.

Please send me details of the above tour.

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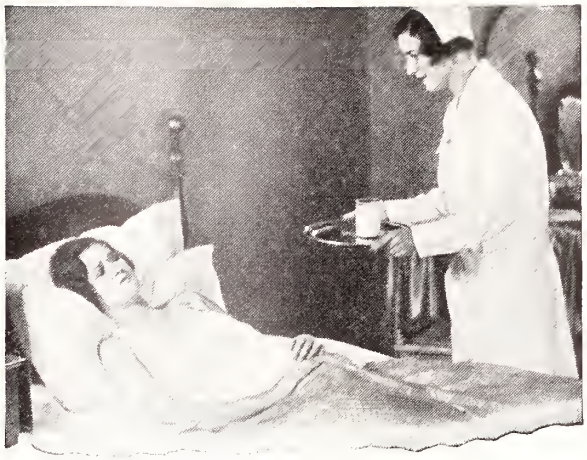

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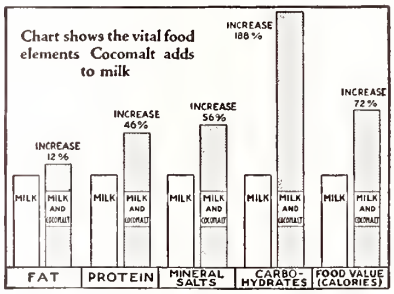

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PAN AMERICAN MEDICAL ASSOCIATION

City of Mexico, July 26 to 31.

The Third Congress of the Pan American Medical Association will be held in the city of Mexico from the 26th to the 31st of July.

On Sunday, July 26, the inaugural session will be opened at the Bolivar Hall of the National Preparatory School by the Honorable President of the Republic.

On Monday, July 27, there will be clinical demnostrations at the hospitals and laboratories, with sectional meetings in the afternoon, and reception in the evening at Chapultepec Castle under the auspices of the Honorable President of the Republic.

On Tuesday, July 28, there will be forenoon clinical demonstrations, afternoon sectional meetings, with a concert in the evening.

On Wednesday, July 29, visits to the Department of Public Health in the forenoon, sectional meetings in the afternoon, and a general session at the Academy of Medicine, in the evening, in honor of the foreign delegates.

On Thursday, July 30, sectional meetings all day, with ball by the Department of Public Health in the evening.

On Friday, July 31, final business and clinical sessions.

Special excursion rates are being offered by railroad and steamship lines. Further information can be obtained from Dr. Francisco de P. Miranda, Exec. Secy. of the Congress, Department de Salubridad, Mexico City, or from Dr. Conrad Berens, Treas. of the Pan American Medical Association, 35 East 70th St., New York City.

THE DOCTORS AS THEY PASS BY

Impressions

It will be interesting to our readers familiar with the medical profession of Phoenix, as it was to the editor, to identify the various members of the hospital staff, from these lyrically expressed characterizations).

Sandy hair, blue eyes, athletic and tall;
You'll find him in his office if pleasure does not call;
He'd rather have you rave about his prowess on the green
Than the skill it takes to excise an appendix or a spleen.

With children he's sympathetic and kind,
With charming persuasion he gets them to mind;
But with others, he's quite often reverse,
Offers criticism unasked, and answers perverse.

To read his progress notes is a treat,
With wit and sarcasm they are replete,
Brilliant, individualistic and wise,
Yet when he operates, everybody sighs.

A brown-eyed tease, with black wavy hair,
For whom most of the nurses have a decided flair;
He likes to play poker the whole night thru;
As an urologist, he's equalled by few.

A clever surgeon who believes in specializing,
A new clinic he's in the midst of organizing;
But alas and alack, he fumes and he bellows
About the shortcoming of the other fellows.

A public health worker who fights to the limit
For any project he thinks should go thru;
For his private practice he ne'er has a minute,
Yet the fair sex he'll always find time to pursue.

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A Series of Clinical Conferences

An opportunity for the general practitioner to observe clinically the latest developments of diagnostic and therapeutic methods being used in special fields of medicine and surgery will be offered by the Clinical Conferences to be held in St. Louis, June 15 to 26, 1931, under the direction of the St. Louis Clinics.

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As a radiologist he's gained international fame,
But as an editor, he's now making a name.
His writings are sarcastic yet replete with dry wit;
His large solemn eyes often merriment emit.

Though you go to have your laryngeal troubles banished,
You're more apt to have your inferiority complexes vanished
For he'll caress you and whisper flattering lies
While he's treating your nose, your throat and your eyes.

He dances entrancingly,
Flirts most convincingly,
Puts you "to sleep" skilfully,
Goes on his way blissfully.

As a surgeon he's efficient and speedy,
Treats alike the rich and the needy;
If a bearing-down pain to him you mention,
He's sure to do an immediate suspension.

In his gayer moments, he drives a Pierce Arrow,
In his humbler moments a Ford.
His patients adore him today and tomorrow;
But at home, he's not always master and lord.

Conscientious, painstaking and wise,
To the top he is certain to rise.
By faculty and nurses, he's still called a dear
After acting as house doctor for one whole year.

From a foreign country he's just returned.
Where new drinks he's sipped and new customs learned.
But now he's compelled to get down to facts.
Such as examining kidneys and exploring urinary tracts.

Still water runs deep is a well known fact,
And this tall quiet man is precisely like that;
The profound thoughts he's thinking would be hard to surmise,
While he's taking out tonsils and examining eyes.

He's very precise—yet gentle and tender;
Untiring, skillful service he'll render.
Stature small, eyes blue, hair white;
Unquestionably a surgeon of might.

With the stork he is in close alliance;
Carries out his technic despite others' defiance.
He's so much in demand that he's always in a hurry;
When he gets that airplane, he won't have so much worry.

This doctor is strictly in it,
Enjoys life to the very limit;
He drinks good liquor and rides wild horses,
Intrigues pretty women, need not worry about his losses.

The most business-like doctor in this whole town,
Alert, skillful, with dazzling eyes of brown;
He's very particular about his charts;
Specializes in lungs and hearts.

Dapper, cheerful, debonair,
Always wears a boutonniere;
For diet and allergy, he has a flair;
With the fair sex, he is "there."

Not only a good surgeon but a general as well,
Who does not hesitate to say damn and hell;
His patients rave about him until it's alarming,
So, at times, he must be gentle and charming.

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A nurse who, morn and night, keeps track of his itinerary.

A melodious voice with an accent charming;
Who procrastinates in a manner disarming;
As a diagnostician he's really a shark;
The Water Users keep him busy till dark.

Brilliant, handsome, young and single,
With the fair sex he does not mingle.
In surgery he will make his name;
On the green, he's gaining fame.

Deeply interested in our medical society,
He's helped solve problems of variety.
Sedate, philosophical, punctilious to a degree;
But his chief aim in life is to get the blind to see.

Tall and thin, with a smile so enchanting,
That instantly flouts all criticism and ranting;
Has his own ideas, and will carry them through
Despite the fact that he appears to be agreeing with you.

He did things to the County Jail,
Compelled them to use the mop and the pail.
Erratic, conceited, dynamic in action;
Women and wine for him have a desperate attraction.

His name he refuses to write in the book,
He wears a rather preoccupied look;
While others procrastinated, he's gone and operated;
The patient gets well, and of course he's congratulated.

Though he had the chance to specialize in urology,
A country town he chose in which to practice philosophically;
An all round good fellow, who dotes on the fair sex;
He comes from Kentucky—what else could one expect?

A man's man through and through;
Hunts, flies and fishes too.
Yet women consult him the whole day through
About marital difficulties and pregnancies, too.

Tall, sedate, a manner austere,
But after you know him, you've nothing to fear.
In the "lab" he spends most of his days,
Cutting up tissues and taking x-rays.

A diffident benedict, charming and young,
By his associates his praises are sung.
He comes from Chicago where he led the single life,
But under Arizona skies, he plans to take a wife.

Our youngest otolaryngologist,
Growing famous in the West
In extracting froeign bodies
From children's throats and chests.

Saunters in, makes his rounds lackadaisically;
Refuses to sign charts, procrastinating graciously;
About the most popular surgeon in this location,
Expecting and receiving service and admiration.

A graduate of Harvard is he;
A deep thinker, interested in psychology.
Yet his manner is frivolous and gay,
Keeps a whole party amused in a remarkable way.

A rare individual, doing good for his fellowmen,
Without desiring glory or recompense;
His disposition is gracious and fine,
Delivering babies is his special line.

ROENTGEN DIAGNOSIS AND TREATMENT OF ENLARGEMENT OF THE THYMUS. Eugene P. Pendergrass, Philadelphia, Pa. The Penn. Med. Jour., Sept., 1930, p. 860.

There are certain definite and well founded facts concerning the thymus which are not sufficiently well known and which deserve consideration. The author concurs in the views of Jackson that thymic menace is largely one of tracheal compression. Any roentgenologic technic undertaken in the study of the thymus must include the upper respiratory tract, and must include a preliminary fluoroscopic study in essentially the same positions as the roentgenographic views. Sagittal views are made on a low table with infant prone upon the cassette. Tube distance is 38 inches and directly over the suprasternal notch. One attendant holds the lower extremities and hips; another holds the upper extremities above the head which must be exactly straight, without slightest rotation to either side and midway between flexion and extension. Exposures can be made in 1/20 sec. and 100 ma. or faster if desired. One exposure is made during expiration and one during inspiration, the child being made to cry for sake of deeper inspiratory effort. An exact lateral view is also required, the arms being held downward and back, shoulders thrown as far forward as possible; use twice the exposure above mentioned, also during expiration and during inspiration. As result of some experimental work, he concludes that exposures should also be made in the erect position, and an adaptable chair has been devised for this purpose.

In considering radiation therapy of the thymus, it is recalled that the gland is extremely susceptible to radiation, symptoms of enlarged thymus sometimes disappearing after an ordinary x-ray examination. Another important observation, not always remembered, is that the gland can regenerate in from five to ten days. Conservative treatment is advanced, giving from 1/3 to 1/4 of an erythema dose over the thymic region, and not repeating unless the symptoms either do not disappear or return. An interval of ten days is allowed between treatments and rarely is more than four treatments required. The factors employed are 130 kv. 5 ma., 10 in. distance, 4 by 4 in. portal, 5 mm. Al filter, 3 to 4 mins. time. Roentgen therapy is almost a specific for enlarged thymus, and if symptoms do not disappear after several treatments, search should be made for some other cause.

DIVERTICULITIS OF THE COLON, WITH SPECIAL REFERENCE TO ACUTE PEFORATIONS OF THE SIGMOID. R. W. Whitman, M.D., Roanoke, Va., The W. Va. Med. Jour., Sept., 1930, p. 544.

Diverticula are found in any part of the alimentary tract, but most frequently in the large intestine; this discussion is concerned with diverticulitis of the colon and especially of the sigmoid. Diverticula may be true or acquired; in the former all layers of the intestinal wall are included; in the latter there is herniation of the mucosa through the weakened muscular layer, leaving only mucosa, submucosa and peritoneum forming the sac. So long as diverticula remain free from infection, their presence is of little consequence; but, like the appendix, if they become infected, there is a different picture to deal with. Diffential diagnosis between diverticulitis and carcinoma of the colon is always difficult. Careful study of symptoms with compe-

tent x-ray study are the main dependencies in the diagnosis. Spriggs in 1000 consecutive cases of x-ray study of the colon in patients with abdominal complaints, found about ten per cent of them with some phase of diverticulosis. It is important to discover the presence of diverticulosis. It is important to discover the presence of diverticulosis before it develops into surgical diverticulitis.

UTEROSALPINGOGRAPHY IN GENERAL PRACTICE; CASE REPORTS. J. Martin Johnson, M.D., Ripon, Wis. The Wis. Med. Jour., Sept., 1930, p. 497.

The author's procedure is preliminary and operative. In the preliminary stage, a careful history is taken and complete physical examination made; this latter includes determination of the patency of the cervix, and dilatation of the canal made. Following this, patient may be taken or sent to the x-ray laboratory, the cooperation of an experienced roentgenologist being deemed essential. With the patient on the table equipped with Bucky diaphragm, by means of the Pressometer lipiodol is injected; the fluoroscope may be used to follow the injection, if desired. After four or five c.c. have been injected the first film is made, and the patient allowed to flex or extend her legs, though without disturbing the nozzle in the uterus. After developing the first film and noting the amount of oil injected, a second injection is made, and a total of 10 c.c. should be sufficient in the majority of cases. This procedure definitely outlines the uterus, tubes and localizes the point of obstruction if tubes are not patent. The procedure is harmless and may be readily accomplished by the physician who adheres to fundamental principles.

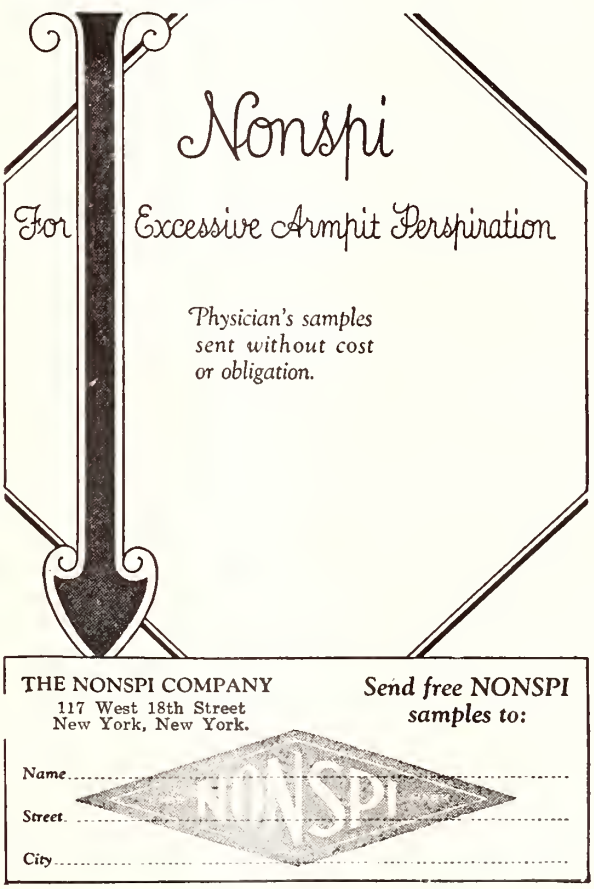
CONFIGURATION OF THE HEART IN CARDIAC DISEASE. Arthur L. Smith, M.D., F.A.C.P., Lincoln, Nebr. The Neb. State Med. Jour., Sept., 1930, p. 337.

No one can make a diagnosis of heart disease by the use of x-ray alone, though the x-ray examinations have supplied us with many invaluable facts. The principal advantage of radiography is the making of permanent records of size, shape and position of the heart and its large vessels, while fluoroscopy is valuable in watching the movements of those organs. Combined fluoroscopy and orthodiagraphy are the most valuable. The size, shape and position of the heart varies, as does the body of the patient; the size of the heart ordinarily varies directly with the size of the body, but not always. Many elaborate measurements have been devised, but in the usual case, the more simplified method is all that is necessary. In left ventricular hypertrophy the increase in size is to the left and apex is rounded, best seen in the left anterior oblique position; typical example is seen in arterial hypertension. In mitral configuration, the left border bulges in region of left auricle and right auricle is pushed to right. The aortic configuration is an enlargement of left ventricle and widening of aortic shadow. The article is illustrated by a number of very excellent drawings, showing heart outlines in all types of heart disease.

Eye, Ear, Nose and Throat man in active practice and good standing, experienced and accomplished, desires location or association in New Mexico or Texas for the benefit of a warmer climate. Add. Box W, Southwestern Medicine.

Hormone and Cancer.—The effort to influence the growth of cancer by various organ extracts is being widely made at present. Logically it might be profitable to inquire why such trials are being made since every pathologist sees cancer growing freely in those organs whose hormonic acitvity is high. The work of Bischoff and his colleagues should be repeated with a tumor that does not spontaneously recede and, if the results are the same, should close the discussion on the possible therapeutic action of extracts from the group of organs tested. (Jour. A. M. A., November 1, 1930, p. 1350.)

Intoxicating Effect of Acetylsalicylic Acid and Coca Cola.—A physician reports that young people in his community are using from 15 to 20 grains of acetylsalicylic acid (aspirin) dissolved in the soft drink Coca Cola, as an intoxicating beverage. The effects are due chiefly to central depression caused by the acetylsalicylic acid fortified possibly by a direct central stimulant action of caffeine and other constituents present in Coca Cola. The actions of acetylsalicllic acid are similar to those of small doses of alcohol, or of a weak alcoholic beverage or of the barbitals or bromides. When acetylsalicylic acid is taken with a beverage like Coca Cola, advertised for its exhilarating effects, which may be caused by a direct central stimulation by caffeine or other constituents of the latter, it is easy to see how the effects of one can be fortified by the other. The continued use of such a medicated beverage may result in undesirable effects of the same general nature as those of narcotic habituation. Here is a most insidious evil, the reenforcement of a popular and highly advertised beverage by a well advertised drug, both long suspected of dangerous tendencies. (Jour. A.M.A., November 1, 1930, p. 1366.)



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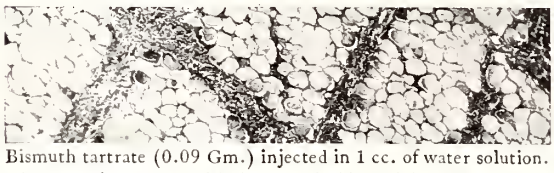
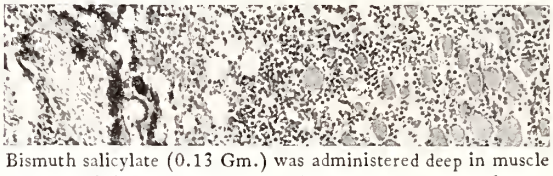
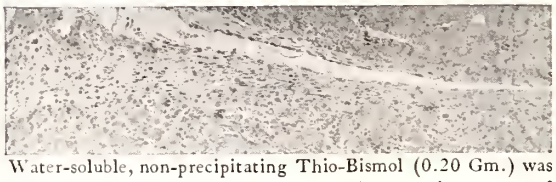


Bismuth tartrate (0.09 Gm.) injected in 1 cc. of water solution. Tissues excised at end of 48 hours. The bismuth has been precipitated in connective tissue trabeculae by tissue fluids. All tissue structures entirely necrotic.



Bismuth salicylate (0.13 Gm.) was administered deep in muscle in 1 cc. of oil with chloretone. Tissues excised at end of seven days. Injected site shows leucocyte infiltration, some muscle fibre destruction, oil lakes and some unabsorbed bismuth. Injury is comparatively mild.



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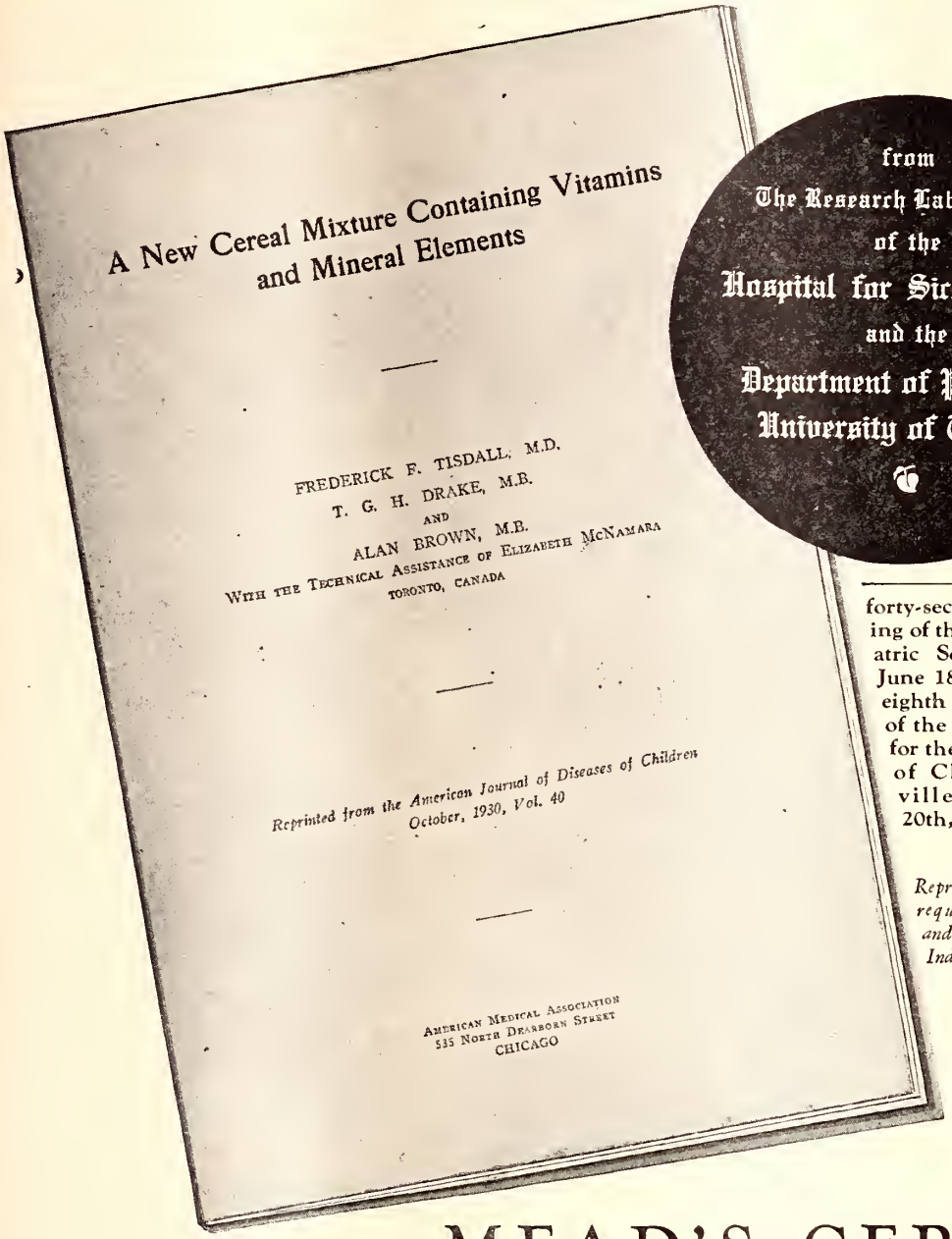
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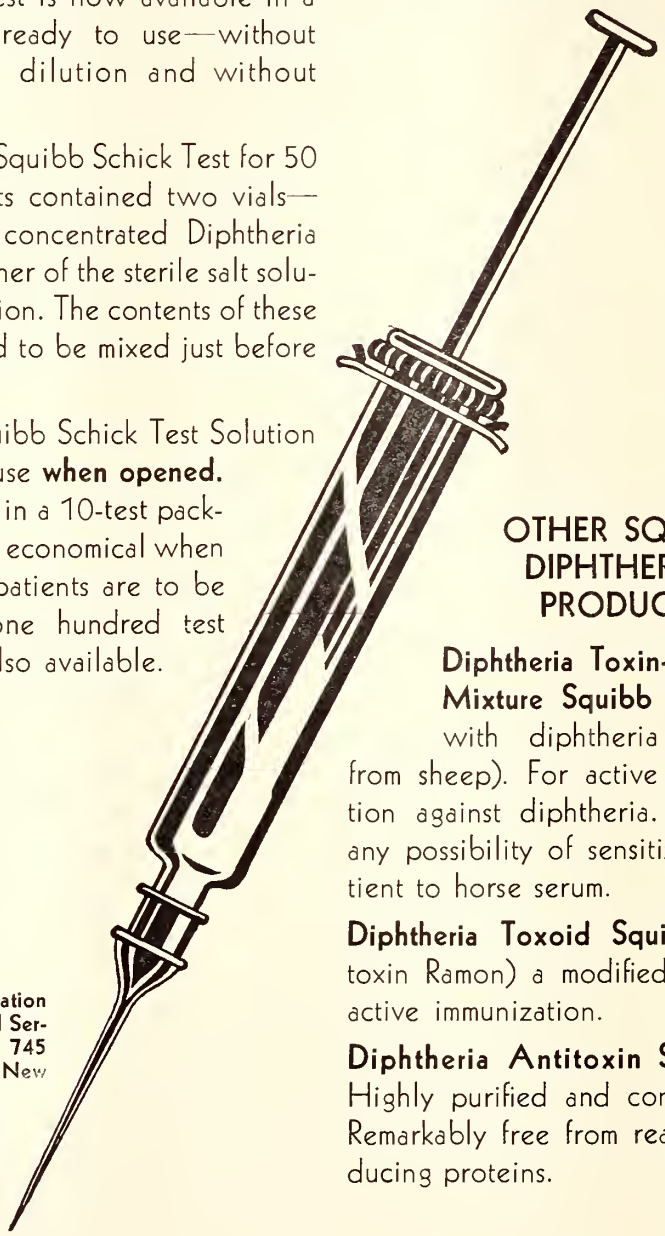

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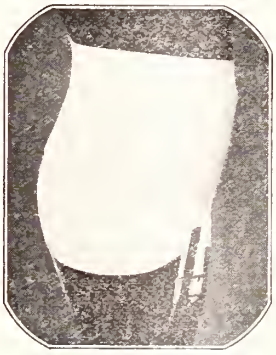

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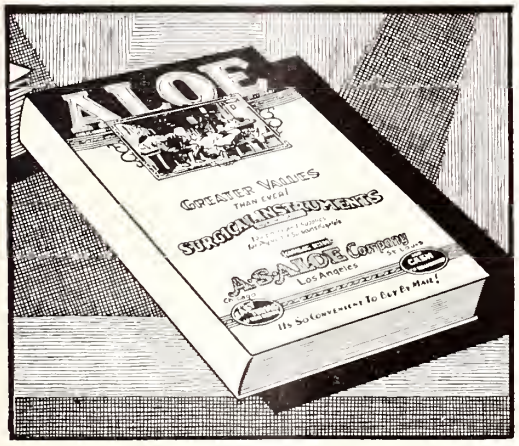

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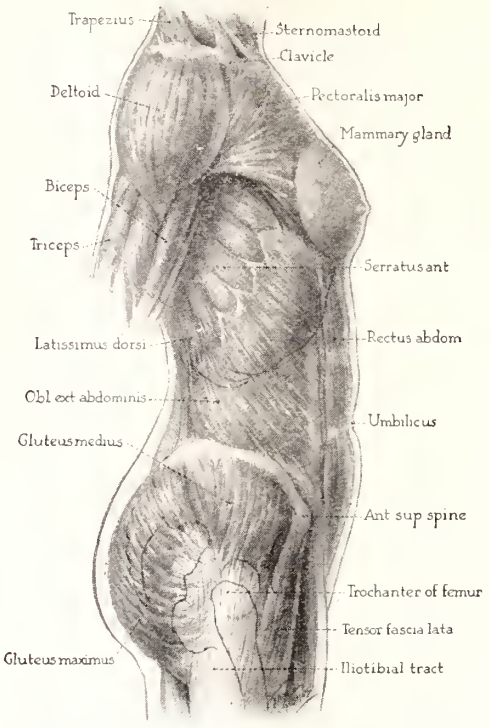

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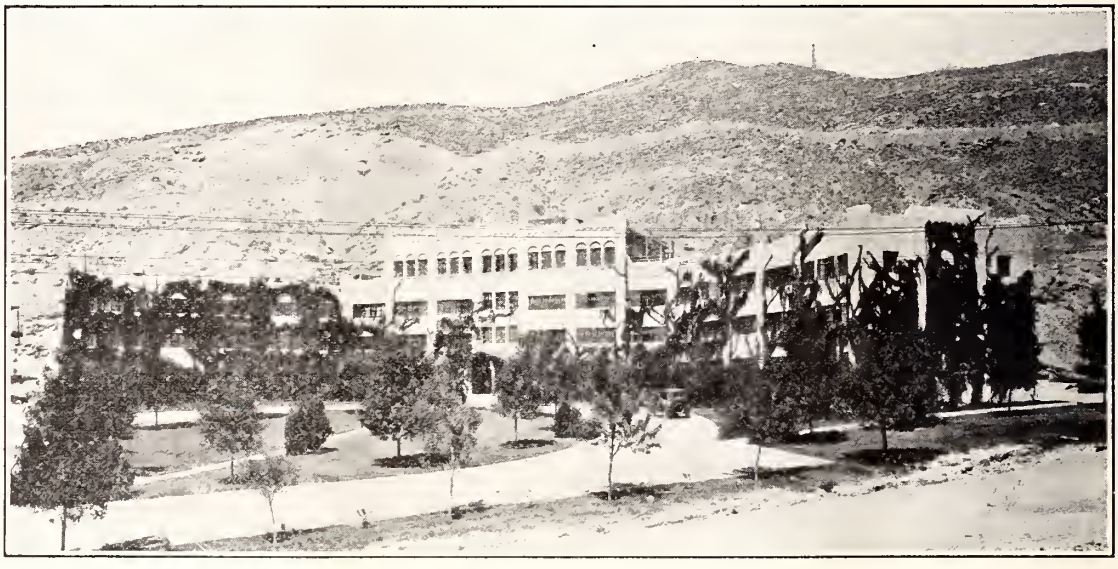

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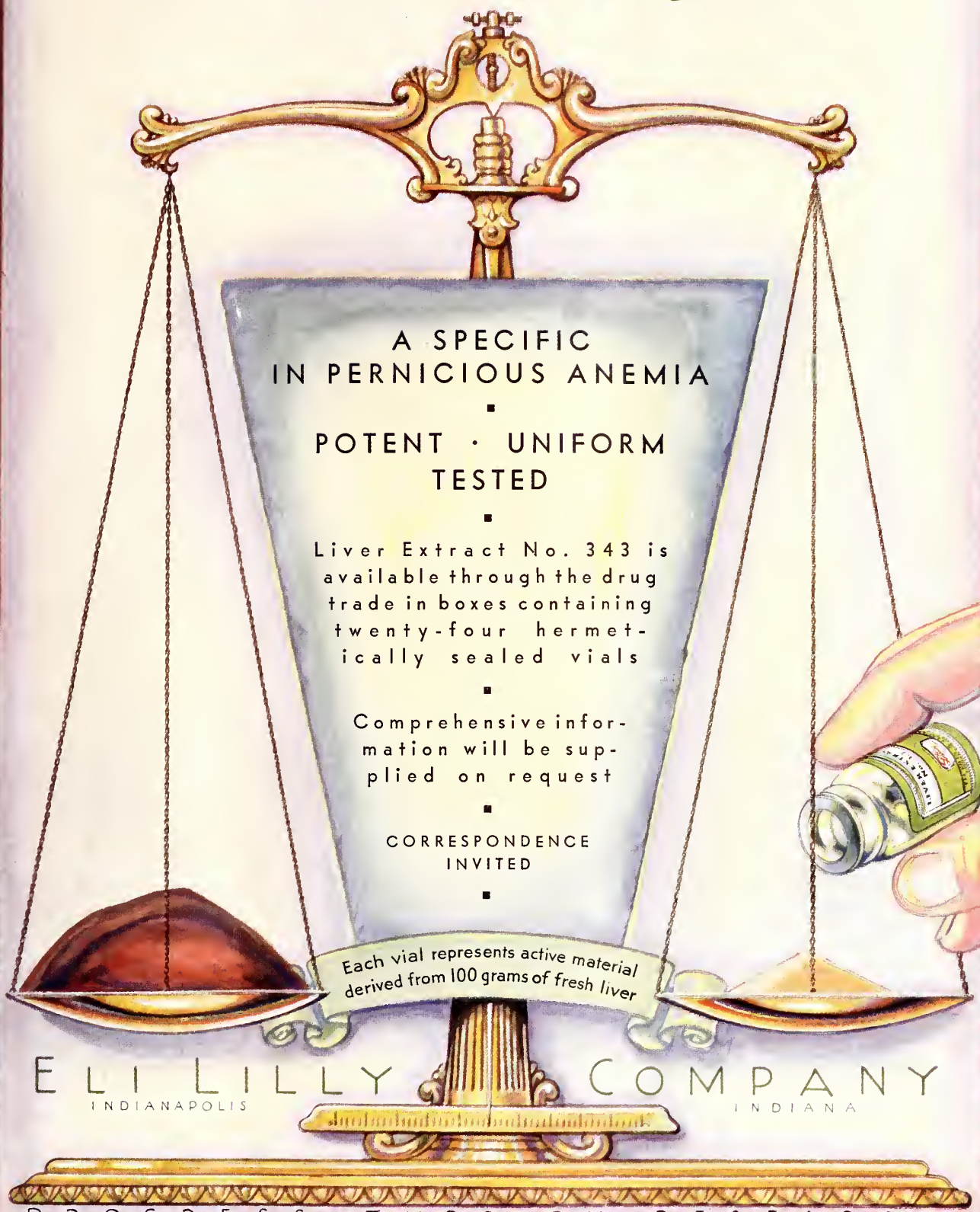

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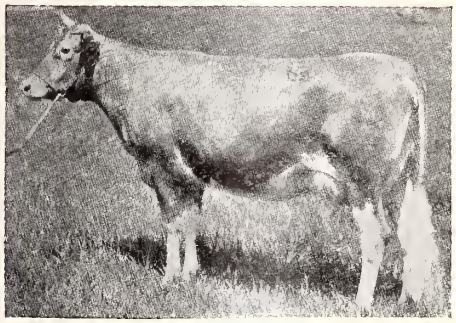

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WHAT ARE YOU WORTH?

HARRY A. REESE, M.D.,
Yuma, Arizona

(Address of the President before the Arizona State Medical Association, at its Fortieth Annual Meeting, held in Nogales, Ariz., May 7-9, 1931.)

"Let him who would be greatest among you, be servant of all." Love and service will win, or I will fail.

I cannot fully express my thanks for the honor which you have bestowed upon me. The honor of being president of a state medical association is one that should spur the ambition of every member in our profession to put forth his best effort to advance medical science. Every man owes something to the profession to which he belongs. The physician, above all men, has a rich heritage. Remember the illustrious names of the great heroes of medicine. Not one of them had the skill of the average physician of this day; and yet each one added something of value to the sum total of human knowledge in the great art and science of medicine. By concentrated thought and untiring effort, we can leave the world of medicine a little richer than when we stepped upon the stage. It may be that the curtain will lift but a brief time, but if we play the part well, we may leave the stage with a smile, "and lie down to pleasant dreams."

The unsolved problems now before the medical profession are so numerous, and of such magnitude, as to challenge the best brains of the world. In no field of human endeavor has greater progress been made, and yet we stand on the shore of the unbounded ocean of truth, and try to grasp the meaning of the Great Physician's words: "Ye shall know the truth, and the truth shall make you free." (John, 8-22.) How much the human race wishes to be free from the handicaps of disease, from sickness, pain and death! How much? No human tongue can tell. When the Master said: "Greater works than these shall ye do," He meant exactly what He said. He had healed a few sick folk, but every great hospital in the world has been erected by Christian hands and money, and millions of sick children have been relieved and lifted up, since He walked the shores of Galilee. "Ye shall know the truth, and the truth shall make you free." "And Pilate saith unto Him: 'What is truth?' And when he said this, he went out again unto the Jews" (John, 18-33). We have no record that this question was ever answered. The Master Mind of all centuries might have said: "Pilate, the answer to your question will evolve like the unfolding of a great and beautiful flower, with the passing of all time; but will never be fully answered until time unveils eternity."

At the very beginning of the reign of reason, man began to ask questions: "What am I? Where am I? Where am I going?" Another generation came, and another, and another, and man said: "Why does the apple fall to the ground? Why does the sun rise in the east and set in the west?" Questioning, thinking, reasoning, investigating, discovering, exploring; thus, came the light of civilization, and the unfolding of truth. Little by little, man became free. He was a slave to darkness; he pressed a button, and his home was flooded with light. He was earthbound, a worm of the dust; he said to

the birds: "How do you fly?" He discovered how. The truth has made him free. He wings his way across the seas. He flies above the clouds.

Men were dying from contagious diseases so rapidly a few centuries ago that their bodies were buried in trenches or pits. The driver of the dead wagon drove through the streets crying: "Bring out your dead. Bring out your dead." Truth unfolded and men were free. But, as soon as they were free from one epidemic, they turned to fight another. Truth is not all discovered at once. Man's progress is slow. Only a few years ago occurred one of the most fatal epidemics of influenza that the world has ever known. About ten millions died throughout the world in one winter. Its prevention is not yet discovered.

Smallpox is preventable, yet epidemic follows epidemic, year after year. Why should a health officer isolate and quarantine smallpox? Vaccination prevents, and if not quarantined, many more accept vaccination. Why should we try to protect men who make no effort to protect themselves?

Typhoid is preventable, and yet every community cares for typhoid cases when they are unable to care for themselves. One family of six was given hospital care in Yuma County for several weeks at an expense of eighteen dollars per day. They drank ditch water. Many were fed while quarantined for smallpox. They refused vaccination. Are these people good American citizens? A good citizen will make some effort to protect himself that he may not be a public nuisance. Epidemic meningitis is another challenge. Dr. Roscoe R. Spencer won his gold medal on his work with "Rocky Mountain Spotted Fever." Are you winning your medal? You may do less, and yet do an important work.

Specific therapy is one of the most brilliant and effective results of scientific investigation, and is one of the most valuable means the physician has for combating infections. Bacterial vaccines are antigens used to stimulate the body cells to the formation of an antitoxin. Good seed in good soil brings forth an abundant crop of toxin-producing bacteria; but good seed in poor soil may grow very weakly, if at all. Immunization makes the soil unfavorable. At the present time we are able to immunize against smallpox, rabies, typhoid, diphtheria and tetanus.

Immunology is in its infancy, and the field is open for further research. Who will be the next to inscribe his name in the Hall of Fame? The horse is not the only animal that is able to evolve antitoxin; and the blood serum may not be the only body fluid forming antibodies. Who has tested the lymph, the spinal fluid, and the secretions from the endocrine glands for their protective powers?

If I were the manager of a research laboratory, with money to spend, I would have a whole zoo of animals for experimental purposes. There is an animal somewhere that is able to elaborate an antitoxin for tuberculosis, in response to repeated injections of tuberculin, but the horse is not the animal. The noble horse has done his share, and I would gladly unveil a monument erected to his memory for what he has done for the babies of the world. Should the horse claim all the glory? What is wrong with the Missouri mule, or the Arizona burro? Have they no "biochemical laboratories" underneath their mangy hides?

I wish that each of you might take inventory of your medical knowledge today, at the very beginning of this three-day session, and another inventory at the end of the session, and see how much you gain in the knowledge of your chosen profession. You owe it to yourselves and to those you serve, to attend every session and to be a good listener. Take the convention seriously, for your job is a man's job and your business is a serious business.

The Committee on Scientific Work began to function shortly after last year's convention, and every man whose name appears on this year's program has been selected with great care. Remember that these men are giving to you the best thoughts of their brains, the accumulated knowledge of experience and research. Many of them have spent months in the preparation of their discourses and have traveled from afar to lay before this body of scientific men the results of their investigations. We owe it to them and to ourselves to be present at every scientific meeting, to listen attentively, and to speak respectfully.

Will you go back to your home a better man? Will you delve deeper into the mysteries of the degenerative diseases of old age? Will you tell us how to stop an epidemic of measles?

The great question is not: "How much is your bank account in dollars and cents?" But, the greater question is: "What are you worth to your community?"

What are you worth?

PYELECTASIS (HYDRONEPHROSIS) AND URETERECTASIS: CAUSES AND TREATMENT

WILLIAM M. SPITZER, M.D., F.A.C.S.
Denver, Colorado.

(Read before the Sixteenth Annual Meeting of the Medical and Surgical Association of the Southwest, held at El Paso, Texas, Nov. 6-8, 1930.)

Reading of the causes of hydronephrosis, one is impressed with the emphasis placed on the obstruction to the outflow of urine. In fact, the general consensus of opinion seems to be that such obstruction is the prime and practically the only cause; and malpositions of the kidney, apparent and real narrowings of the ureter, and the presence of aberrant vessels—all presumed to cause obstruction—occupy the entire field devoted to the etiology, furthering the thought that mechanical obstruction to the outflow of urine and pyelectasis are synonymous. Yet the practical working urologist sees many cases in which none of these lesions is demonstrable but in which marked dilatation of the ureter and pelvis exist.

The principal means of correction advocated for the past four decades have been nephropexy, and the proof of the permanent lack of success has been the various methods of the various surgeons, each claiming that the lack of permanent success was due to a faulty technic, and each inventing a newer operation to fix the kidney. Because of the lack of lasting success by any method, new means of attack gradually came into vogue. Here, the writer takes occasion to say that, while he believes nephropexy to have its indications for certain conditions which may or may not co-exist with hydronephrosis, yet it must not be considered a remedy for the hydronephrosis.

Hunner's[1] idea that stricture of the ureter was a very frequent cause of this condition, came close to hitting the mark, and many of these ureters have been dilated with large sized bougies, with a goodly percentage of relief where the stricture could be demonstrated, and with a small percentage of success even in those cases where a stricture could not be shown to exist. However, he failed to take into earnest consideration the concomitant lesions which were the cause of the stricture as well as the hydronephrosis, even though his writing shows that he was probably aware of such conditions.

Tying off and cutting of aberrant vessels over which a ureter pouched itself, dropped into disrepute when it became evident that this procedure was virtually a partial nephrectomy, and it was supplanted by cutting the ureter and re-uniting it on the other side of such vessel. Resection of the enlarged pelvis enjoyed but a very short popularity because such pelvis again became dilated.

And so, the entire subject remains in an unsettled state, with a total permanent success by any form of treatment so small that many urologists of experience are beginning to feel that this condition should not be treated surgically unless it can be demonstrated that the kidney function of the hydronephrotic kidney, in those cases where only one kidney is affected, is so reduced, and the symptoms and sufferings so marked, that nephrectomy becomes justifiable.

That we may arrive at a better understanding of the pathology, let us consider what precedes it. To begin with, almost all processes of inflammation anywhere in the body are frequently accompanied by attacks of pyelitis. It is agreed, now, that pyelitis, per se, is not an entity; that the condition is pyelonephritis, the nephritis being the primary lesion in the uropoietic system.

Such pyelitis and ureteritis mean, of course, an invasion of the wall of the pelvis and ureter by bacteria. Damage to the musculature of this canal (for the pelvis is but a dilated end of the ureteral canal), damage to the ganglion cells and sympathetic nerve supply which innervate the ureter, and damage to the submucous connective tissue, follow. Nature attempts to wall off this invasion of bacteria in the various coats of the ureter and pelvis with the production of fibrous tissue, and thus still further damages this muscular tube and its innervation. Once the kidney has been infected, this pathway remains open, and each new infection of any portion of the body may produce a new nephritis and pyelitis, further damage ensuing. All this is peculiar to, although not entirely confined to, the period of infancy, youth, and early adult life. Late adult life and old age have their own troubles through ascending infections from the lower urinary and genital tracts, the same damage being done to the ureter, pelvis and kidney.

We come now to the definition or, rather, description, of what occurs with an inflammation of the kidney. The kidney is a highly complex organ, consisting of a few million entirely separate excretory systems, each such component system containing a glomerulus, proximal convoluted tubule, loop of Henle, and distal convoluted tubule. The collecting tubule, judging from its embryology, is probably not a working portion of this system, but merely the extension of the calyces. These various systems, each having its own blood supply, are bound together by fibrous tissue. When infection occurs

through the blood stream, damage is done to the vessels of the kidney, the vasa afferentia being the heaviest sufferers, the tunica intima and tunica media sustaining the greatest damage. The epithelium of Bowman's capsule, as well as that of the tubules, the epithelium of the blood vessels within the glomeruli, as well as those coming to and leaving this structure, all suffer. And this process is ended, in the event of recovery, by a replacement fibrosis. To be sure, the damage varies with the amount of virulence and the location of the infection, and the end result and total amount of harm done depend upon such virulence and the amount of tissue involved. Not infrequently, the virulence is so great that miliary abscesses form within the kidney, these having been most commonly noted subcortically. Most enlightening is the work of Dorothy Russell[2] on this subject, as well as that by J. P. Simonds[3].

Perinephritis, peripyelitis and periureteritis are next in order, the fat surrounding these structures becoming infected by extension. He who has had occasion to remove tuberculous kidneys can vouch for this condition, this lesion sometimes being so well developed that an intracapsular extirpation is the only possible way of removing such kidney. The natural result of this process is a firm fixation of the kidney, its pelvis and ureter, because of the replacement fibrosis, nature's attempt at arrest.

The normal kidney, in its loose bed of perinephritic fat, has a free movement with respiration of from three to five centimeters[4]. Such movement of the kidney, its pelvis and loosely attached upper ureter, also occurs with the assumption of the upright position. With the advent of perinephritis, these structures become fixed in a bed of fibrous tissue which no longer permits such free movement, thus preventing the proper expansion of the kidney within its capsule, and interfering with free peristalsis. The musculature of the pelvis and upper ureter is badly impaired, as stated above, and the autonomic nerve supply is damaged. It is no wonder, then, that the pelvis and the ureter dilate. With this dilatation, this tube elongates itself, because the muscular coat has a longitudinal as well as a circular layer. Thus, such dilatation not only broadens the pelvis and ureter, but elongates these structures. The length of the ureter is always greater than the distance from the kidney to the bladder, and when its length is increased, it is compelled to kink itself. As may be seen, the kink is not the cause of the trouble, but the result, and the correction of such kinking as a method of cure of the condition would be illogical. The pelvis, when dilated, would naturally fold itself over an aberrant vessel, and, therefore, neither the tying of the aberrant vessel nor the section and reunion of the ureter on the other side of such aberrant vessel would, in any way, help the pathology which is going on. The aberrant vessel was not the cause of the condition, but the dilatation of the pelvis was its cause. It must not be forgotten that this aberrant vessel existed from the beginning, and did not cause trouble until the dilatation of the pelvis as a result of the inflammatory process mentioned above[5].

Again, if there be no perinephritis to fix the kidney, but if a marked hydronephrosis occur, this, together with the additional weight of the kidney, both as a result of increased tissue as well as the weight of the fluid contained in the enlarged pelvis, would cause a dropping of the kidney, particularly if the enlargement were so marked that the entire organ became too big to fit into the kidney notch. It must not be forgotten that nothing holds the kidney in place except intra-abdominal pressure, and the shape of the kidney and its notch; and that as above stated, the kidney moves up and down normally. In such event, logically, the nephroptosis would not have been the cause of the hydronephrosis, but, conversely, the hydronephrosis would have been the cause of the nephroptosis. Therefore, restoring the kidney to its original position would in no way help such pyelectasis, inflammatory changes being the cause of the condition and its ensuing symptoms. We very often see all degrees of movable kidney unaccompanied by any sort of symptom, its possessor unaware of the fact that the kidney is movable.

Considering again the changes which occur as the result of infection, it may be seen from the pathology that a damaged kidney function is one of the results. Such damage may be so minimal that no symptoms appear, and this is probably the case most often with these attacks of nephritis. It is also true that the damage done to one kidney may be much greater than such damage on the other side, and this explains why, at times, hydronephrosis is unilateral. Nevertheless, both kidneys are probably always infected by such blood-borne infection, and it is not infrequent to see pyelectasis on one side and atresia due to fibrosis in the pelvis of the other side.

What may we hope to do for these sufferers? We can not completely restore the integrity of the kidney, nor is this demanded of us, because the kidney is capable of much

more work than ever is required of it, even under stress. Occasionally, however, the damage to the kidney is so great that the patient suffers not only from the anatomic changes at and about the kidney capsule, pelvis and ureter, but also from the impaired kidney function, and it is the belief of the writer that in these cases something may be done to partially restore the function of the kidney. With the accomplishment of this, the task of relieving the symptoms caused by the anatomic changes in and about the kidney, pelvis and ureter, and the kidney itself, comes into consideration. Accomplishing this, a virtual restoration to normal, as far as the patient knows, is secured.

Such result is not to be gained by fixing an already fixed kidney, pelvis and ureter, but rather by freeing the kidney, its pelvis and ureter, from the adhesions which bind it, and thus restoring the normal motion of these structures, and permitting the free muscular action of the latter two. When a nephropexy has given temporary relief for hydronephrosis, such relief was not accomplished by the fixation of the kidney in a certain position, but rather as the result of the nephrolysis, pyelolysis and ureterolysis incident to the procedure. In plain language, by freeing of the kidney, its pelvis and ureter, from the surrounding fibrosis[6]. The fixing of the kidney probably encourages the early return of the fibrosis and accounts for the lack of duration of the relief. The nephrolysis, pyelolysis and ureterolysis being accomplished, there remains but the improvement of the function. Decapsulation of the kidney permits of freer circulation within this organ, and thus the function is increased. Decapsulation of one normal kidney, in dogs, increases the function of this kidney, naturally with the decrease of the function of the other normal kidney, as proved by some yet unpublished work by the writer. The well-known work of Edebohls has quite conclusively demonstrated such increased function, in the human, in nephritis. This is so well accepted that the decapsulation of the kidney is a sort of last resort in severe uremia, the results being startling, especially when the patient is in extremis.

Concisely put, for hydronephrosis, where operative interference is indicated, free the kidney by decapsulation, thus increasing its function, free the pelvis and the ureter.

The localized pain will be found to have disappeared, the patient's weight will increase, digestive disturbances and headaches, general malaise and loss of weight will, in the carefully selected cases, have been found to have disappeared, and the result is usually gratifying.

Where the function of the hydronephrotic kidney has been assumed to a great extent by its fellow, so that, to put it arbitrarily, the diseased organ is accomplishing, as far as we may judge by functional tests, less than one-quarter of the entire work, nephrectomy is indicated. It would be too much to hope that decapsulation would do much toward restoration of function in so badly damaged an organ.

There is a class of cases, both kidneys being hydronephrotic, in which no treatment of any kind, whether surgical or otherwise, is indicated. These are the cases in which the hydronephrosis is of neurogenic origin. Whether the lesion be in the central nervous system or be peripheral, little is to be hoped for, in the present state of our knowledge, by any form of treatment. Whether the lesion be central or peripheral, very generally the condition is bilateral, and the motor function of the bladder is likewise damaged.

This residual urine in the bladder, together with the symmetrical pyelectasis and ureterectasis, gives us our cue to the diagnosis. However, it is conceivable that this may be unilateral, and that the bladder involvement may either be slight or absent, in which event considerable difficulty might be found in making such a diagnosis. As above stated, once such diagnosis is made, all forms of local treatment, whether operative or otherwise, are contra-indicated. Treatment directed against the lesion of the nervous system, especially when the cause is lues, is indicated.

Of hydronephrosis caused by the accidental ligation of the ureter incident to abdominal operation, the writer cannot speak of his own experience, never having come in contact with such a case. Judging by the paucity of case reports, such accidents must be rare.

The treatment depends, then, on the amount of suffering the possessor of this condition is called upon to endure, and on a careful study as to the cause of the condition, as well as whether the results of such treatment justify the means adopted to relieve the patient. Since hydronephrosis exists, at times, without any morbidity worth mentioning, such cases are best left alone if the treatment in any way endanger life. If stricture of the ureter can be demonstrated, as is frequently the case, it will be found that dilatation of such stricture will, in a large percentage of cases, give results

that are brilliant. If violent or long enduring pain, with loss of weight, and gastro-intestinal symptoms rule the picture, operative interference is indicated. Great care must be exhibited in attributing abdominal pain and gastro-intestinal symptoms to kidney lesions, even when such kidney lesions exist, or failure will result. Such operative interference should consist of decapsulation of the kidney, with pyelolysis and ureterolysis, or, in the event of a non-functioning or low-functioning kidney, nephrectomy, providing the other kidney is capable.

SUMMARY

1. There are three causes given for hydronephrosis, the overwhelming one being infection. Lesions of the central or peripheral nervous system are comparatively rare, and the accidental ligation of a ureter is extremely rare.

2. Such infection involves, where hydronephrosis is the result, not only the kidney, but the walls of the pelvis and ureter as well, and is accompanied by a paranephritis or perinephritis.

3. Nephropexy has its indications, but is not a therapeutic measure to be used against hydronephrosis.

4. Treatment should consist of dilatations of the ureters: if results are obtained, nothing further is necessary. Failure by this means involves a reconsideration of the case to determine whether operative interference is justifiable.

5. Operative interference should consist of either a decapsulation of the kidney, with a freeing of the pelvis and ureter, or nephrectomy.

6. Hydronephrosis of neurogenic origin should have no form of treatment directed against the kidney condition, but, rather, treatment for the neurologic lesion, and careful study should be made of each case in order to exclude such cases.

REFERENCES

1. Conservative Renal Surgery Associated With Ureteral Stricture Work. Hunner, Guy L., Jour. of Urology, 9, 1923, p. 97.

2. A Classification of Bright's Disease, Dorothy S. Russell, M. D. Pub. by H. M. Stationery Office, London.

3. J. P. Simonds, J. A. M. A., 95, 13, p. 930.

4. Childs & Spitzer, quoted by Israel, Jas. W., Wilh. Israel, Chirurgie der Niere u. des Harnleiters, p. 44, Geo. Thien, Leipsig, 1925.

5. H. P. Winsbury White, British Journal of Surgery, 13, p. 217.

6. Vincent J. O'Conor, Trans. Sect. Urology, A. M. A., pp. 137-149, 1929.

TREATMENT OF BURNS

J. LEIGHTON GREEN, Jr., M.D.
El Paso, Texas.

The importance of a satisfactory treatment for burns is apparent upon recognition of the high mortality, the prolonged morbidity, and the permanent deformities that accompany this type of injuries.

Child mortality is yearly augmented by burns. Statistics compiled by the Metropolitan Life Insurance Company[1] reveal that 45 per cent of the lethal burns occurring annually in the United States are in children under six years of age. In adults, the mortality is lower. Every industrial surgeon, however, has observed scores of men incapacitated for weeks by burns—a tremendous economic loss. Deformities and disfiguring scars resulting from burns not infrequently undermine a patient's psychic equilibrium, transforming a productive citizen into an invalid. Treves and Pack[2] reported thirty-four cases of carcinoma developing in burn scars, and Strauss[3] has reported similar cases—tragic sequelae of inadequate treatment.

ETIOLOGY AND INCIDENCE

In the Children's Hospital of Michigan, it was found[1] that 62 per cent of burns were due to somoene's leaving a pail of hot water unprotected, filling a tub with hot water and allowing the child to fall into it, or permitting a child to pull a kettle of hot water, soup, or coffee, from a stove, spilling the contents over itself.

The second important etiological agent in causing burns in children is playing with matches or around a bonfire. This suggests that more than 60 per cent of the mortality and morbidity of burns in children is definitely avoidable, and is due to carelessness in adults. In Great Britain there is a law mkaing it a punishable offense to leave a child under seven years of age in the room with an unprotected fire[4].

In adults, statistics as to etiology are not available. Industrial burns, frequently caused by chemicals, concern us in El Paso, an industrial center. Apparently, the incidence of burns is on the decrease, due, no doubt, to improved methods of prevention. In one large London hospital, in the period from 1899 to 1903, there were 990 cases admitted, with 251 deaths as contrasted with the period 1924 to 1928, when 286 cases were admitted, and only 19 died.

On the basis of mortality statistics[5], females seem to be affected more than males, in the ratio of 3 to 2. More boys than girls die of burns during the first three years of life. From the fourth year upward, however, a relatively higher death rate is found

in girls, increasing until, at the age of nine, twice as many girls as boys die from this cause. Up to the age of 35, females predominate, then males and females are about equally affected for a number of years. Later, in old age, more females than males are again found burned. Doubtless the preponderance of fatalities among women may be explained by the character of clothing worn and by the difference in occupation. More burns occur in the winter than in the summer months.

PROGNOSIS

The prognosis in case of a burn must be dependent upon surface involved and depth of tissue affected. Depth of burn is determined by the agent and the duration of its contact with the skin. Underhill[6] has shown that severe burns penetrate skin and superficial tissues, injuring underlying viscera. He submits the resulting pathology as one cause for shock.

It has been said that a child will tolerate a burn of only one-seventh of its body, while an adult may recover from one involving one-third of the total cutaneous surface. Thick skin, as on the palms and soles, offers a greater resistance to heat than do more delicate parts of the body. The skin of a child, thinner, of softer texture and more delicate than on corresponding parts of the adult body, is more severely burned than the adult by the same thermal stimulus. From comparatively slight thermal trauma, there may occur in the child large, deep burns, producing exhaustion, and necessitating skin grafting. In children, therefore, prognosis should be more guarded than in adults.

Acid and alkali burns produce necrosis deeper into the tissues than do scalds or thermal burns. Electricity devitalizes tissue and more prolonged morbidity results. The etiological factor must be considered in forming a prognosis for a burned patient.

PATHOLOGY

In treating an extensive superficial burn, three generally accepted conditions may demand attention: first, shock; second, toxemia; and, third, the wound itself. In addition, Underhill has demonstrated that anhydremia occurs, resulting in marked concentration of the blood. Loss of fluids over burned areas is profuse, due to an increased permeability of the injured capillaries. Under the conditions attending a burn, substances that normally do not pass through the capillary wall are found in the edema fluid. Reabsorption of the fluid, on the other hand, is abnormally slow. Fluids injected by hypodermoclysis into burned areas, are very slowly absorbed. Apparently, capillary permeability in one direction may exist with decreased permeability in the opposite direction.

Animal experiments involving superficial burns over approximately one-sixth of the body, demonstrated that water loss from the blood may reach as high as 70 per cent of the total blood volume. Blood thus concentrated is an inefficient oxygen carrier. Allowed to persist, it produces failing circulation, oxygen starvation of the tissues, a fall in temperature, and finally a suspension of vital activities. Estimation of hemoglobin is a simple but reliable test for blood concentration. It should not be neglected in examining the severely burned patient. Hemoglobin of 125 per cent has reached a dangerous limit; with 140 per cent concentration, the patient cannot long survive.

Underhill pursues this theory so far as to attribute to blood concentration the symptoms usually ascribed to toxemia. He contends that the so-called toxemia is not a toxemia at all; that is, it is not produced by any demonstrable toxin. Toxic symptoms are produced by marked concentration of the blood, and subsequently an inefficient circulation, causing changes in temperature, renal involvement, lowered blood pressure, and other disturbances. Even anatomic changes, such as hemorrhages and ulcers, may be attributed to a single fundamental cause; namely, a change in circulation induced by penetration of heat to the organs or tissues.

At variance with this theory is the heretofore accepted one that burns produce protein decomposition, these products of protein autolysis circulating in the blood stream and causing toxic symptoms. Vogt and Vaccarezza observed that when parabiosis was established between two animals and one was burned, the other showed evidence of toxemia. They demonstrated further that toxic symptoms did not develop in the unburned animal within twelve hours, but that both animals finally died of "toxemia" when left united. Toxic cleavage products of protein decomposition were isolated by Pfeiffer from burned skin. Robertson and Boyd proved the toxicity of products of protein autolysis from burned tissue.

TREATMENT

First degree burns, producing only erythema without vesiculation, require comparatively little treatment. Butesin picrate is an an analgesic ointment which contributes to the patient's comfort. It may be applied with or without gauze dressings.

Second and third degree burns concern us more, for in these cases not the wound

alone, but the patient as well, demands attention.

Clinical and experimental facts suggest that the toxemia which accompanies severe burns might be rationally combated by some form of local treatment which would prevent absorption from the burned area. Various attempts have been made to accomplish this. Debridement enjoyed a period of popularity[7] but has been largely discarded, due to the severity of the procedure. Douglas used adrenalin and procaine in an attempt to prevent absorption.

An ideal treatment for burns must, obviously, (1) stop pain, (2) prevent toxemia, (3) insure asepsis, (4) prevent the loss of tissue fluids, and (5) prevent contractures and scar formation. Application of tannic acid is the treatment which more nearly approaches this ideal.

Tannic acid is an amorphous powder, readily soluble in water. The solution must be freshly prepared, for on standing it deteriorates into gallic acid, which is less astringent. Use of tannic acid as primary treatment for burns was first reported by Davidson[8] in 1925. His method consisted in the use of 2.5 per cent freshly prepared solution of tannic acid, applied on sterile gauze over the wound. Dressings were moistened every hour with this solution, and then carefully removed as soon as the surface was well tanned. A dry, tanned, tough coagulum was formed from the precipitation of protein in the wound by tannic acid. This brown crust was left exposed to air, and no further dressings were applied.

Recent improvement in technic has introduced the spray to replace gauze dressings, as a means of application. We use a motor-driven spray for applying tannic acid to burns, but a simple atomizer will serve.

The severely burned patient should first receive morphine for relief of pain. Fluids should be forced by every available route— saline, glucose and water. From four to eight liters should be administered to an adult within the first 24 hours— the period of greatest loss of fluids. External heat is indicated if symptoms of shock are observed. The importance of forcing fluids, by infusion, proctoclysis, hypodermoclysis, and by mouth, cannot be over-estimated.

Devitalized epithelium and vesicles are stripped away with forceps. If any oily substance has been previously applied, it must be washed off with benzene. Three per cent aqueous solution of tannic acid (some authorities advocate 5 per cent) is sprayed on the burned areas every thirty minutes until a mahogany-brown color is obtained. The color of the coagulum gradually deepens into black. In spraying about the face, the eyes must be protected.

No further dressings are applied. The patient is placed under a tent, where he is kept warm by electric lights under the tent. The heat thus formed aids in drying the coagulum. Tannic acid's analgesic effect is soon apparent, and the patient usually rests comfortably without more opiates. The dry coagulum becomes insensitive to touch. As epithelium forms beneath it, the crust curls at the edges and can be trimmed with scissors. Healing is usually complete in two or three weeks.

Herzfeld[9], who has by this method reduced the mortality at the Royal Edinburgh Hospital for Sick Children from 38 per cent to 9 per cent, summarizes thus the advantages of tannic acid:

(1) It forms a coagulum with the raw surface and thereby decreases absorption of autolyzed proteins.

(2) By forming a potentially waterproof and rigid covering over the denuded surface, it minimizes sepsis. No large, weeping wounds are left open to invite infection.

(3) Pain is relieved immediately on application of the tannic acid. Montgomery[10], in reporting a series of burn cases in children, treated with tannic acid, noted how these little patients suffered a minimum of pain, as compared with those treated by other methods. The pain of changing adherent dressings is also eliminated.

(4) The coagulum decreases diffusion of body fluids, thereby preventing toxic symptoms.

(5) Beneath the coagulum, healing progresses rapidly. The coagulum serves as a splint. The resulting scar is superior to that formed by other methods, and contractures are rare.

BURNS DUE TO ACID AND ALKALI

The literature relating to caustic burns is meager. Gradle[11] in 1922 reported cases of severe burns from sulphuric acid used in batteries. He advised neutralization of the acid with a mild alkali, and copious lavage with water. Hinkel[12] later described a similar treatment for burns caused by acid or alkali. First aid is extremely important in these cases. The burned patient should be immediately thrust under a shower, drenching him with water until all excess acid is washed away. Industrial plants using chemicals should have showers installed at convenient places so as to be readily available. The water should be warm, for under cold water some patients may go into shock. Eyes should be washed with warm water.

Immediately following his bath, the patient should be taken into a warm room and stripped of all clothing. Acid burns are best neutralized with solution of sodium bicarbonate. For alkali burns, vinegar serves as a suitable weak acid. Having neutralized the chemical responsible for the burn, one may now treat the wounds just as those produced by dry heat, hot water or molten metals.

Acid and alkali burns not only require longer to heal than other burns, but are more susceptible to infection. Balsam of Peru in castor oil has been found an excellent healing agent for small, scattered burns. Where large areas are involved, tannic acid is better.

COMPLICATIONS

In any large series of burns, some infections will occur. Tannic acid, used early in treatment, permits a lower incidence of infection than any other type of dressing. Should infection occur beneath the coagulum —and this as a rule happens only in deep burns[13]—the crust should be cut away. Resin cerate with 10 per cent balsam of Peru, advocated by Babcock[11], prevents excessive formation of crusts on these infected surfaces, and promotes healing. Even in the presence of infection, granulating tissue will be found beneath the coagulum, and will respond to application of this ointment. Wet boric acid packs have been used, but inevitably produced toxic symptoms[15].

Where infection has gained a foothold before treatment is begun, tannic acid has a minimal value. Necrotic tissue should be removed with forceps, resin cerate ointment applied daily with the gloved hand, and no other dressings applied. In late cases of this kind, splinting of parts may be necessary to prevent contractures.

In third degree burns, grafts may be indicated to prevent excessive scarring and contractions. If the tannic acid coagulum remains adherent at the end of three weeks, one may be certain the burn is of third degree. Autogenous grafts should be early applied. Grafts composed of epidermis alone are not satisfactory. The skin developing from them is thin, abrades easily, is firmly attached to underlying scar tissue which contracts, frequently breaks down, and does not stretch to facilitate movement of the part. Beekman[16] and others advocate full thickness or deep "pinch grafts", placed close together. Immobilization by splinting is important following application of the graft. Where flexor surfaces are involved, the part must be kept in extension during the healing process.

Full thickness grafts are applicable[17] to surfaces on which there is little subcutaneous fat, such as the hands and feet. The pedicle flap may be used on face, arms, legs, and where scars are adherent to bony surfaces.

Curling in 1842 first described duodenal ulcers resulting from burns. Autopsy has occasionally revealed similar peptic ulcers, no doubt produced by circulatory changes caused by direct penetration of heat to the duodenum. Harris described a fatal case in a child of three and one-half years, due to hemorrhage into the adrenal, with ulceration of the duodenum.

Evidence suggests that the kidneys have difficulty in secreting normal urine from a concentrated blood. Impaired functional capacity of the kidneys is therefore found in severely burned patients, with albuminuria and other evidence of damage. Such pathology supports the contention that fluids should be forced.

Bronchopneumonia is the terminal infection in many burned children, occasionally in adults. Otitis media, mastoiditis, suppurative arthritis, and osteomyelitis may occur; even septicemia has been observed. Complications must be anticipated, and treated as they arise. Tannic acid technic has reduced the incidence of severe complications, thereby reducing mortality.

SUMMARY

1. In severely burned patients, blood concentration from loss of body fluids is largely responsible for shock.

2. Treatment for shock, with copious administration of fluids, is the first indication.

3. Burns caused by acid or alkali should be immediately and thoroughly washed with water, then neutralized.

4. Tannic acid, applied by spray, and left exposed to the air, offers the most satisfactory treatment for superficial burns.

BIBLIOGRAPHY

1. Davidson, E. C.; and Penberthy, G. C.: The Treatment of Burns in Children with Tannic Acid, Detroit Proceedings, Interstate Post-Graduate Med. Assn. of N. Amer., 1929, 265.

2. Treves, N.; and Pack, G. T.: The Development of Cancer in Burn Scars, Surg. Gynec. Obst., Dec., 1930, Li. 749.

3. Strauss, A.: Epitheliomas Arising in Scars, Am. J. Surg., 1929, 7, 699.

4. Fishbein, N.: Treatment of Burns, Scientific American, 1931 (Feb.), 121.

5. Cutting, R. A.: The Treatment of Burns, New Orleans M. & S. J., (Aug.) 1928, 81, 112-120.

6. Underhill, F. P.: The Significance of Anhydremia in Extensive Superficial Burns, J. A. M. A. (Sept.) 1930, 95, 852.

7. Willis, A. M.: J. A. M. A., (Feb.) 1925.

8. Davidson, E. C.: Surg. Gynec. Obst, 1925, 41, 217.

9. Herzfeld, Gertrude: The Treatment of Burns

and Scalds by Tannic Acid, Practitioner, (Feb.) 1929, 122, 106-111.
10. Montgomery, A. H.: The Tannic Acid Treatment of Burns in Children, Surg. Gynec. Obst., (Feb.) 1929, 48, 277.
11. Gradle, H. S.: Battery Burns, J. A. M. A., (Nov. 25) 1922, 1819.
12. Hinkel, W. H.: Treatment of Burns Caused by Acid or Alkali, The Nation's Health, (Dec.) 1925, 7, 828.
13. Packard, G. B., Jr.: Treatment of Burns with Tannic Acid, Colorado Med. (June) 1929, 26, 173-178.
14. Babcock, W. W.: Textbook of Surgery, W. B. Saunders, 1928, 70.
15. Beckman, Harry: Treatment in General Practicee, Saunders, 1930, 744.
16. Beekman, Fenwick:: The Prevention and Treatment of Contractures Following Cutaneous Burns, Am. J. Surg., (June) 1929, 6, 810-811.
17. Koch & Kanaval, J. A. M. A. (Jan.) 1929, 92, 277.
18. Harris, R. I.: Brit. J. Surg., (April) 1929, 27, 677.
19. Underhill, F. P.; Carrington, G. L.; Kapsinow, Robt.; and Pack, G. T.: Blood Concentration Changes in Superficial Burns, and Their Significance for Systemic Treatment. Arch. Int. Med. 1923, 32, 31.
20. Sayre, R. E.: Treatment of Burns, Illinois M. J., (Oct.) 1925.
21. Fist, H. S.: J. A. M. A., May 7, 1927, 88.
22. Davidson, E. C.; & Matthew: Arch. Surg. (Aug.) 1927, 15, 265.
23. Wilson, W. C.: Brit. Med. Jour., (Oct.) 1927, 2, 591.
24. Bettman, A. G.; Northwest Med., (April) 1929, 28, 182.
25. Editorial, The Effects of Superficial Burns, J. A. M. A. (Jan. 17) 1931, 96, 195.
26. Schmidt, E. R.: Burns, Am. J. Surg., (Feb.) 1930, 8, 274.
27. Beekman, F.: Tannic Acid Treatment of Burns, Arch. Surg. (March) 1929, 18, 803-806.
28. Harrold, Thomas, J.: Burns—The Tannic Acid Method of Treatment, J. M. A. Georgia, (July) 1928, 17, 286-288.
29. Karsted, Alfred: Thermal and Chemical Injuries. Am. J. Surg., (Feb.) 1930, 8. 360-361.
30. Gordon, R. M.: Treatment of Burns by Tannic Acid, Lancet, (Feb.) 1928, 214, 336-337.
31. Fraser, John: The Treatment of Burns in Children, Brit. M. J., (June) 1927, 3467, 1089-1092.

FOCAL INFECTIONS AND SYSTEMIC DISEASES

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A focus of infection is a circumscribed region in which pathogenic micro-organisms multiply in the tissues. And since it was first recognized that this has an important bearing in medicine much interest has been displayed and a great deal of work has been done on the subject. More conditions are all the while being proved due to this cause and other ailments whose etiology are not thoroughly understood just now are suspected of having this for a cause, too, in some manner, though the proof may be lacking at the present time.

It is interesting to note that Benjamin Rush in 1818 called attention to the connection between diseases of the teeth and certain bodily ailments which he described in the terminology of his time as rheumatism, dyspepsia, consumption, vertigo, epilepsy, and menstrual and nervous disorders. And Judson Daland was probably the first to recognize the role of the tonsils in this same capacity. Of course, it was the epoch-making work of Rosenow which firmly and scientifically proved that the foci, as we know them today, are the cause of certain infectious processes in other parts of the body. He demonstrated conclusively how infecting agents spread; the specific electivity of certain organisms for certain tissues; and he further has produced experimentally practically all of the diseases that we now consider as being caused by the different foci.

It is a well-recognized fact that people harboring chronic foci of infection have a very low resistance to acute infectious diseases. Evans noted, in a study of 23,000 morbidity instances over a period of eight years, that the incidence of the epidemic form of pyogenic infections of the upper respiratory and upper digestive tract was greater in those individuals who exhibited evidence of a persistent low-grade infection of the sinuses or the tonsils than was the incidence of similar infection in those individuals who were free from such persistent nasal and throat infections. He also noted that when the persistent foci were corrected, the resistance to subsequent acute infectious diseases was markedly strengthened. Keyes' work, too, in this regard concerning the teeth, brings similar findings. He showed that the establishment of dental prophylaxis among the children in an orphan asylum reduced the incidence of acute infectious diseases 59 per cent in the first six months and to 2 per cent during the following year.

Another report that bears out the contention that chronic foci predispose to acute infectious diseases is given by Darling. In autopsying a large series of pneumonia cases he found that more than 90 per cent showed inflammatory changes in the sinuses.

The three principal offenders in the role of primary foci are the teeth, tonsils and the nasal accessory sinuses. The teeth appear to cause more direct manifestations of systemic disease than the others, especially in middle-aged and elderly individuals. Dental foci may exist as periapical abscesses, pericementitis, pulpitis, and pyorrhea alveolaris. The infecting agent is usually a low virulence group of the streptococcus viridans.

My experience has convinced me that all devitalized teeth, all o'd crowned teeth and all large two-surfaced alloy-filled teeth, are potential menaces in the mouth and should be under constant suspicion. They should be considered guilty until definitely proved to be otherwise. And they should be x-rayed at regular intervals, too, for in the majority of instances they will become focal points at some tmie subsequently, even if innocent at the first examination. And I do not approve of temporizing with pyorrhea teeth.

The tonsils come into prominence as foci early in childhood. Bacterial invasion of these structures, and the lymphoid tissue of the nasopharynx is almost universal during the early years of life, as they play an important part in the resistance against general bacterial invasion in the nose and throat. And once infected, the tonsils, with adenoid extension, can cause a great deal of sickness in childhood. They probably send more children to the doctor than any other cause, with the common secondary manifestations of periodic sore throat; repeated "colds"; otitis media; mouth-breathing with the resulting deformity of the dental arch; anemia; anorexia, and so forth. How often tonsillectomies are seen to effect magic-like results in children. With adults a deceiving thing is that many innocent appearing tonsils are diseased. One or more abscesses may be deeply located in the gland. Then, too, atrophied tonsillar stumps and scarred tonsils are particularly apt to be the seats of chronic infection. The micro-organisms occurring in tonsillar foci are mainly from the streptococcus-pneumococcus group.

Originally most of the interest concerning foci was directed toward the teeth and tonsils but in the last few years an exhaustive amount of work has been done on the other centers, especially the nasal accessory sinuses. Chest diseases seem particularly to be caused by sinus foci and those which stand out are chronic bronchitis, asthma and bronchiectasis. Mullin and Ryder in experimental work have shown the sinus lymph absorption was by way of the submaxillary and internal jugular nodes, the lymph ducts, the great veins, the right side of the heart and the lungs. By protracted flooding of these lymph channels with infectious material from hyperplastic sinuses, especially the antra, they have shown how chronic bronchitis may be caused. Frequent chest colds may be the first clinical evidence of this extension, but a definite chronic bronchitis is eventually established and in a neglected case the final result is a bilateral bronchiectasis. And it has been shown that this secondary peribronchial infection may be the causation of bronchial asthma as well as bacterial or pollen protein sensitization. In this connection Freund is of the opinion that even though most cases of asthma are due specifically to the sensitivity to animal danders, foods, bacteria or pollens, this sensitivity is acquired on account of a devitalized bronchial mucosa secondary to an extension downward of a prior similar infection of the para-nasal sinuses.

The chronic bronchitis and early bronchiectasis secondary to chronic sinusitis may closely simulate tuberculous findings in the chest. Colonel Rist, of the French Army, reported a series of cases primarily diagnosed as pulmonary tuberculosis that subsequently were proved due to chronic sinusitis and which were definitely non-tuberculous.

The chest is not alone in being especially attacked by the organisms of chronic sinusitis. Patients with active sinus drainage swallow a great deal of this secretion as it drips down the posterior nasal pharynx and thus the stomach is being constantly bombarded with the germ-laden material. Often thick mucoid or gelatinous masses will be seen hanging down the naso-pharyngeal wall, causing marked voice changes, and ready to be expectorated or swallowed. The gastric juices kill most, if not all, of these invading infection agents but it has been pointed out by Lawson that in the face of such mass infection potent toxins possibly render the gastric mucosa more easily attacked by bacteria from the blood stream. He has shown that statistically, people with chronic sinusitis are more liable to the common infectious processes of the abdomen, such as gastric or duodenal ulcers, appendicitis, cholecystitis, and so forth, and as Rosenow has experimentally produced all of these conditions the importance of the sinuses as causative agents of infectious processes in the abdomen is readily seen. Focal infection with its characteristic bacterial electivity for certain tissue plus trauma or a low localized resistance from a deficient blood supply appear, in the light of present knowledge, to constitute the etiology of these abdominal diseases. The organisms usually isolated from nasal foci are members of the streptococcus-pneumococcus group; diphtheroid organisms, B. influenza; micrococcus catarrhalis and the staphylococcus.

The problem of focal infections is not one by which an individual focus alone is looked upon as causing a disease. Often more than one are involved. A primary focus causes focalized areas elsewhere and any of these secondary foci may spread the infection to

other foci as the pernicious process spreads, or one or more may immediately cause a systemic disease, becoming primary in this regard. A vicious cycle of foci may be established, any one of which may cause the trouble which sends the patient to his physician.

From the clinical and laboratory evidence at hand at the present time the following acute localized infectious processes are considered as being due to hematogenous metastasis from a primary focalized infection:

Acute endocarditis
Acute pericarditis
Acute pleuritis
Acute peritonitis
Acute infectious arthritis
Acute bursitis
Erythema nodosum
Purpura hemorrhagica
Acute bronchopneumonia
Acute cholecystitis
Acute appendicitis
Acute enteritis
Acute pancreatitis
Acute nephritis
Acute pyelitis
Acute neuritis
Acute myelitis
Acute poliomyelitis
Acute colitis
Acute gastric and duodenal ulcer
Acute conjunctivitis
Acute keratitis
Acute iritis
Acute iridocyclitis
Acute oveitis
Acute episcleritis
Acute retinitis
Acute optic neuritis
Acute thyroiditis
Acute meningitis
Herpes zoster
Acute chorea
Acute myositis
Acute myocarditis
Acute osteomyelitis

Insidious and persistent bacterial focal infections have been found to play a part in the etiology of the following chronic inflammatory processes:

Chronic infectious arthritis
Chronic bursitis
Chronic endocarditis
Chronic myositis
Chronic neuritis
Chronic cholecystitis
Chronic appendicitis
Chronic gastric and duodenal ulcer
Chronic nephritis
Renal calculi
Hypertension
Anemia
Impotence—in the male

And a condition of malaise, lassitude and weakness, possibly with vertigo and insomnia, hypotension and vasomotor irritability, often grouped under the heading of neurasthenia.

Now, regarding the foci which cause all of these infectious processes, grouped in the order with which they are most often met with clinically, they are as follows:

Teeth
Tonsils
Nasal accessory sinuses
Prostate
Appendix
Gallbladder
Rectum
Sigmoid
Uterine tubes
Uterus
Pelvis of kidney
Ureter
Bladder
Lymph nodes, especially peribronchial
Middle ear

Of course, it must be remembered that any organ or tissue when harboring focalized bacteria may serve as an offending focus and produce an extension of the infectious process elsewhere. Two unusual instances in this regard are reported by Billings in which two cases of arthritis were due to persistent infection being present about the finger nails. And Fischer mentions a case of his in which a perinephritic abscess resulted metastatically from an infected wound on the finger.

The diagnosis of focal infections is sometimes easy and sometimes very difficult. An elderly person with arthritis and a mouth full of snags presents no problem at all. Nor does the youth with endocarditis and pus-exuding tonsils. But the majority of instances are fairly difficult to reach a decision upon. Once convinced that a condition is secondary to a focus, a diligent search should be made, by the process of elimination, until the guilty offender is found. Thorough physical examination, roentgenography, and the laboratory examination of smears, secretions and discharges, are the watchwords. Regarding the diagnosis of sinusitis, the x-ray with stereoscopic views is most essential and prostatic secretion should be routinely examined in making all physical examinations of this kind. The importance of stool cultures, also, should be emphasized.

The treatment of determined foci of infection is their immediate removal. In case this cannot be done, as when dealing with the sinuses, mastoid, prostate, renal pelvis, and so forth, the principal aim is to establish freer drainage. And care must be taken to direct attention to all the foci that may be playing a part in the causation of a given ailment. Often both primary and secondary focalized areas may be contributing to the cause. Of course, it is readily seen that both of these must be cleared up if a cure is to be effected. For example, it will do little good to attempt to clear up a prostatic focus which is causing an arthritic complaint, when the prostate itself is secondary to carious teeth. Both the prostate and the teeth must be included in the therapeutic attack in such a case.

Measures to better the general health are also beneficial. In this regard may be mentioned a nutritious diet high in vitamin content, ultraviolet radiation, and the correction of hygienic errors in the mode of living. Autogenous vaccines and nonspecific protein therapy are sometimes of value.

GRANULOMA INGUINALE

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Granuloma inguinale is found in many parts of the world, especially in the tropics and sub-tropics. It has been reported from Brazil, the West Indies, Porto Rico, Guiana, the Pacific Islands, Australia, the South and West Coast of Africa. I have observed it in Siam and South China, and we know it to be common in our southern states. In a review of the literature I fail to find this disease reported from New Mexico. Recently a Mexican, a native of the state of New Mexico, consulted me regarding an ulcerative condition of the pudenda which upon examination proved to be granuloma inguinale.

Fig. 1. Granuloma inguinale involving the prepuce and glans penis.

Clinically this condition manifests itself as an infective, granulomatous disease of the genitocrural regions. It is not a constitutional disease, but a local manifestation of an as yet undetermined causative agent. As a rule it starts on the genital organs following intercourse (Fig. 1), the incubation period being from five to ten days. One or more very small nodules make their appearance and gradually ulcerate superficially. There is no pain and very little discharge, the lymphatics are not involved. If untreated, it slowly spreads and may eventually involve the entire genitocrural region, even extending down the thighs and above the pubes (Figs. 2 and 3). With such extension there is always more or less mixed infection with the common pus-producing organisms that results in considerable discharge with a very offensive odor.

Fig. 2. Advanced stage of granuloma inguinale.

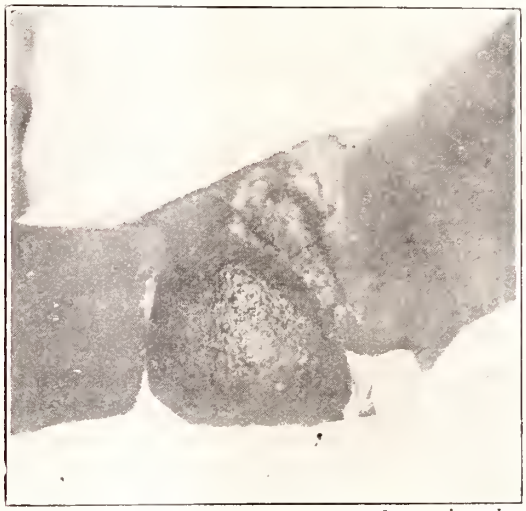

Fig. 3. Advanced stage of granuloma inguinale in female, involving labiae and genitocrural region.

The infection has a marked tendency to attack apposing surfaces. As it advances it also tends to heal, and the original sites of infection, with the tissues in the immediate vicinity, may be covered by a rubber-like scar that breaks down readily either as a manifestation of a reinfection or an acute exacerbation of a quiescent pathological process.

The entire infected area presents, as a rule, a slightly elevated excoriating and superficially ulcerating picture. In very advanced and untreated cases, complications, the result of contracting scar tissue, may manifest themsleves. Pseudo-elephantiasis, urethral stricture and rectovaginal fistulae have been reported.

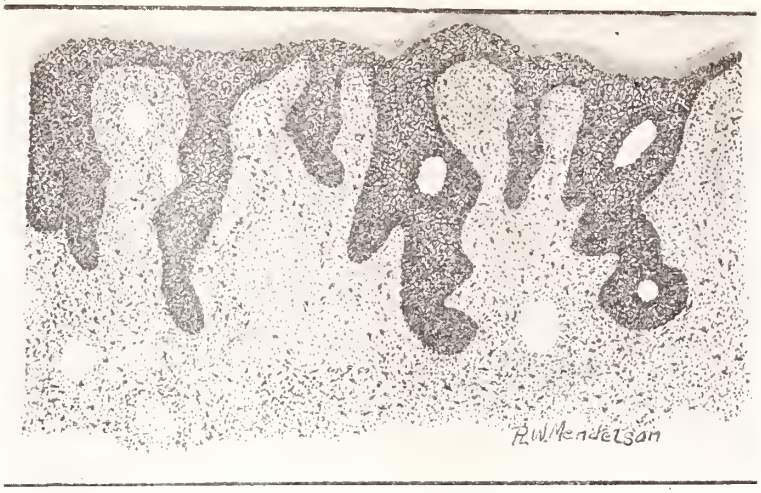

Fig. 4. Drawing to illustrate the microscopic appearance of the tissue from edge of lesion of granuloma inguinale.

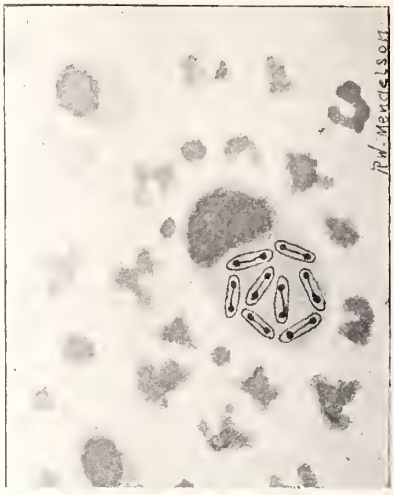

Fig. 5. Drawing to illustrate cell containing Donovan bodies. This shows the structure of the Donovan body, with the rod connecting two polar dots.

Pathologically, the disease has been compared to rhinoscleroma. The drawing (Fig. 4) represents the margin of an infected area. There is a small round cell infiltration of the corium, many plasma cells, but no giant cells. The growth is vascular, but not hemorrhagic, and there is no suppuration. As a result of the round cell infiltration the papillae increase in length and produce the typical papule. At the same time there is an increase of the interpapillary processes of the epidermis. In the older parts, the cells become swollen and disappear, being replaced by connective tissue and as this shrinks the area becomes scar-like.

The cause of granuloma inguinale has never been determined. Many observers have reported on the so-called Donovan bodies, first described by Donovan in 1905. This organism is a capsulated intracellular body; stained with Wright's stain it appears as portrayed in the drawing (Fig. 5). A very fine rod connects the characteristic bipolar extremities. Castellani places it in the group B. lactis aerogenes, probably B. mucosus-capsulatus of the Friedlander group. In smears from an infected area it is found in the endothelial cells.

The cultivation of this organism on Sabourraud's medium is not difficult. It becomes pleomorphic in forty-eight hours. Considerable work has been done in an attempt to prove the etiological relationship of the Donovan body to the disease, granuloma inguinale. Some observers have reported positive results. I have made many inoculations with pure cultures obtained from active cases, but have never been able to produce a lesion that resembled the original disease. A variety of subjects was used for experimental purposes, including rabbits (Fig. 6), apes, negroes and myself

Fig. 6. Local abscess in rabbit's ear inoculated with Donovan bodies.

(Fig. 7). In every case I was rewarded with a simple abscess. Cultures made from these abscesses remained negative and smears from the same revealed only an occasional organism. Smears made one week after the appearance of the abscess were negative, only pus cells being present. Observing the inoculation on my own arm over a period of months fails to reveal any other reaction than the primary abscess.

The treatment of this condition includes the actual cautery, x-rays, and the intravenous administration of tartar emetic. Some

cases respond to one form of treatment while others do not. Each case seems to be a personal equation to a degree and, while tartar emetic produces very satisfactory results in early cases, the more chronic ones tax the endurance of the patient and the ingenuity of the doctor.

Fig. 7. Lesion on author's arm inoculated with Donovan bodies.

THE MEETING OF THE AMERICAN COLLEGE OF PHYSICIANS BALTIMORE — March 23-27

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Albuquerque, N. M.

(Report read to the Bernalillo County Medical Society at Albuquerque, N. M.)

The meeting was called to order Monday afternoon, March 23, by Dr. Maurice C. Pincoffs, Baltimore, Chairman of the Arrangements Committe, who stated this was the first time the College had ever returned for a second visit to the same city. Ten years ago they met in Baltimore and then had only four hundred members; now they came back with over two thousand.

The first address of welcome was made by Dr. Joseph S. Ames, President of Johns Hopkins University. Dr. Ames stated that Johns Hopkins appreciated keenly the opportunity of extending a welcome to the College. He said we all know what Johns Hopkins had to offer and felt that they would be benefited more by the meeting than we would, as the presence of the leaders of medicine from all over the country and their clinics would certainly be a stimulus. They felt they had been preparing for weeks for a very scrutinizing examination and that this preparation and examination would be very beneficial to all of them.

Dr. Raymond A. Pearson, President of the University of Maryland, said the University was happy to join in the welcome and felt highly honored to have us with them. He wanted us to feel that their welcome was a hundred per cent. The University of Maryland is made up of several parts that had been acquired at different times and has medical, dental, law and pharmacy departments. The oldest building in America which has been continuously used for medical teaching belongs to them. They honor our organization because its purposes are the upholding of high standards and such organizations are badly needed. He further said that actions speak louder than words and the program they had prepared was their welcome.

John M. G. Rowland, President of the Medical and Chirurgical Faculty of Maryland, said they wanted to add their welcome; their society was organized in 1799; their name is long but it is the State Society and it has taken itself seriously from the first. In 1790 they had 240 members but at that time only 40 of the members were medical men. They now have a splendid hall, library and lounging room.

Dr. L. P. Hamburger, President of the Baltimore City Medical Society, said they also wanted to welcome us. He said Baltimore has the first Washington monument. The first reading, singing and playing of the Star Spangled Banner was in Baltimore; it was noted for its wonderful oysters, beautiful women and brave men, may we long remember the meeting and may we want to come back.

Dr. Syndey R. Miller, President of the American College of Physicians, in his address as reply to the addresses of welcome, said that he was a guest in his own home town but that he wanted to help as host and that he wanted to give credit to a great many people who had helped in the preparation of the program whose names did not appear in print. He said all the hospitals had helped and practically all the doctors connected with the clinics and that he hoped the program would prove as satisfying as it looked.

Dr. Julius Friedenwald, of Baltimore, discussed "The Clinical Significance of So-Called Chronic Appendicitis". He stated conflicting views are held with regard to this condition; that operations are frequently done with unfavorable results. A diagnosis of chronic appendicitis should rest on a history of previous attacks and the chronic

disease is often only a part of a general disturbance in other parts of the alimentary tract which the removal of the appendix does not clear up at all; such conditions may involve the stomach, duodenum, liver, gall bladder or colon; x-ray findings are not conclusive, as there may be changes in shape, size and position, with kinking or fixation, filling or non-filling, any one or all of which are often seen without symptoms. When symptoms are present they are not distinct; pain may or may not be significant, as right lower quadrant pain is often caused from pelvic conditions or may be due to conditions in the abdominal wall itself. Diagnosis is hard to make, often cannot be made and should never be made without a history of previous attacks. He had a history of one hundred cases who were operated on with poor results.

Dr. Thomas R. Brown, Baltimore, discussed "Early Diagnosis of Neoplasms of the Digestive Tract." Therapy is the ultimate for which we strive. Early diagnosis is essential and withuot it we fail, yet early diagnosis is often possible. These growths are on the increase due to new forms of trauma, excessive consumption of meat, and lack of roughage. Occupation plays a part. Facts as to causes do not help, the only hope being in early diagnosis. A history of the case often gives a clue and yet eight-five per cent have had no previous trouble. Lesion often begins in the lesser curvature—the silent area. Ulcers sometimes develop into cancer, but rarely do so. Some metastasize early—they are the hopeless cases. He said he has had no success with anything but surgery. If the trouble lies in the small bowel, early diagnosis is impossible and notwithstanding operation, these cases do not live over three years. In the large bowel, however, you have better chances. In intestinal neoplasm, symptoms are often misleading; many cases in the large bowel could have been diagnosed much earlier had they been suspected. Analysis, history and study of the patient will lead to proper diagnosis. It is wiser to operate on suspicion than to wait until diagnosis is evident. Treatment is early, bold and radical surgery.

Dr. Lay Martin, Baltimore, discussed "Gastric Secretion". He made a study of gastric secretion by inserting a tube into the stomach and constantly withdrawing the secretion. He had the point of the tube located with a fluoroscope so that he knew from just what point he was drawing his secretion. The stomach was stimulated by histamine. He found chlorine is secreted when the acid falls and trypsin was increased. This happened when the contents became alkaline which showed this was due to regurgitation of fluids from the small bowel. Histamine increased both volume and acidity of hydrochloric acid and neutral chlorides. The hydrochloric acid increases in amount and increases in strength but the basis remains the same. The urine also changes as does the blood during gastric secretion.

Dr. Fred M. Smith, of Iowa City, gave a paper on "Studies on the Mechanism of the Pain of Peptic Ulcer." These tests were made by inserting a small rubber balloon connected with a duodenal tube and having it connected with a graph so that the contractions of the stomach were recorded. Then by inserting another duodenal tube he made his observations. The introduction of air into the colon caused pain, severe and frequent contractions were recorded by the graph. The patient was then given atropine; the pain was relieved and the contractions ceased. When given more air, the pain recurred. Sodium hydroxide was introduced into the stomach and the pain stopped. The contractions of pain in cases of duodenal ulcer cease during sleep. Air in stomach causes distress and contractions. One-half per cent solution of hydrochloric acid into the stomach quieted the waves. The introduction of air caused distress and its aspiration immediately relieved distress. Sodium bicarbonate increased the contractions and atropine stopped them. Epigastric pain after meals and introduction of air brought on pain and the giving of milk stopped it. There was no relation whatever between the degree of pain and the acidity. His conclusions were that the pain depends on gastric activity.

Dr. Russell L. Cecil, of New York, discussed "Rheumatoid Arthritis." He said arthritis might be considered the stepchild of medicine, that it has received very little attention, most doctors feeling like jumping out of the window when a patient with arthritis comes into the office. Osteoarthritis in the aged is a phase of senescence and is the result of degenerative processes of age. Rheumatoid arthritis is an infection with moderate fever, loss of weight, an increase in the amount of granular tissue in the joints. In 65 cases he was able to get streptococci by culture. In some of these cases it took three or four weeks to get the culture. They were accompanied by peri-articular swelling and roughened joints. Tests for streptococcic agglutinin were positive in 97 out of 103 cases and his controls were negative, and the streptococci injected into the veins of rabbits gave typical joint lesions in ten days which he was able to demonstrate

by x-ray. The more advanced the arthritis, the more potent the agglutinations.

Vaccine therapy has been brought back into favor by this work. Rheumatoid arthritis is regarded as a specific disease caused by a special strain of streptococcus hemolyticus intermediate between the viridans and the ordinary hemolytic type. He has treated several hundred cases by vaccine prepared from the typical strain. The vaccine is killed by formalin and injected subcutaneously and intravenously. Uses small doses and avoids reactions. Results fall into three groups: those who recover completely; those who partially recover and become stationary; those who show no effect. Consider vaccine an important therapeutic agent in treating rheumatoid arthritis; how much of the effect is specific and how much due to foreign protein reaction is questionable.

Dr. Warfield T. Longcope, Baltimore, read a paper on "Variations in Manifestations of Rheumatic Fever in Relation to Climate." Dr. Longcope said rheumatic fever is a disease very rare in the tropics, that in the examination of 150,000 hospital cases in the tropics, there were only three cases of rheumatic fever. The disease becomes more prevalent as you travel north. In the southern states it is not nearly so common as in Baltimore and in Baltimore it is not as common as in Boston. In the district of Montreal and across Canada it was more common even than in Boston. He had an analysis of 142 cases in Johns Hopkins Hospital during a five-year period; of these 135 developed cardiac complications. He considers rheumatic fever essentially a disease of the heart. In acute form it may be severe or fatal and it was definitely a valvular disease in 125 cases. He found that while rheumatic fever was not as common in Baltimore as in Boston, cardiac complications are more common in Baltimore than in Boston. Rheumatic fever as seen in Baltimore is essentially a carditis and gives a different clinical picture from that seen farther north.

Dr. William S. Thayer, Baltimore, discussed "Some Phases of Endocarditis." His conclusions were based on 76 autopsies and 306 cases of endocarditis. He stated that infection in these cases is clear; it is not proved that it is streptococci but it is suspected. The two principal forms are the acute, malignant endocarditis in which death occurs within a few weeks and the subacute or chronic endocarditis. This may be so insidious that disease of the heart is not even suspected. He stated the rheumatic type of cases come on as a "thief in the night". He found the valves affected were, in order, the mitral, aortic, tricuspid, and pulmonic very rarely. Rheumatic endocarditis is a single picture of general disease. It is present in chorea and leads to death through myocardial failure. Emboli are often distributed by the blood and deposited in the kidneys, spleen, skin or under the skin. Gonorrheal endocarditis ends often in recovery. The distribution is similar to rheumatism. Subacute endocarditis is generally fatal. Recovery from infectious endocarditis is not as rare as usually thought. Multiple emboli may cloud the diagnosis and the distinction between rheumatism and infectious endocarditis may be easy but at times is very difficult, and can only be made by carefully considering all the evidence.

Dr. Henry A. Christian, of Boston, discussed "Chronic Myocardial Insufficiency, Chronic Non-Valvular Cardiac Disease and its Therapeutic Management." He stated rheumatic fever is the largest cause of valvular disease. The majority of cases of rheumatic fever began in childhood or early life and it's a condition which occurs again and again. The average case dies in twenty years, so the valvular heart conditions among the older people are not of rheumatic origin. Syphilis affects only the aorta and syphilitics develop their trouble in fifteen to twenty years. After forty years of age, the cardiovascular diseases increase and these are neither rheumatic nor luetic. Senility causes many evils in life, but it does not have much to do with this trouble. Hypertension is somewhat like what Mark Twain said about the weather: "Everybody talks about it, but nobody does anything." Focal infections should be cleared up, but clearing up imaginary infections benefits no one, especially the patient. Diets of all kinds have been advocated; we have the high carbohydrate diet and the low carbohydrate diet, the low protein and the high protein diet, in fact, all manner of diets have been recommended. Digitalis therapy should be begun as soon as we detect any enlargement of the heart. He emphasized this fact as someone had quoted him as stating digitalis was only of use in cases of auricular fibrillation and he wanted to correct that wrong impression.

"The Causation of Cardiac Pain" was discussed by Dr. Alexander Lambert of New York. Cardiac pain is caused by spasm of the coronary arteries. The nerves come from the autonomic nervous system. The outlying ganglia give off the nerves. The sympathetico-adrenal system controls the heart, respiration, kidneys, and the emotions affect

these centers. The increased aortic pressure increases the coronary flow. The coronary flow increases and diminishes in direct proportion to the heart action. A puncture of the radial artery will cause more pain than a puncture of the brachial. A puncture of the radial artery causes swelling, vomiting and defecation. Stretching of the vessels causes pain and sometimes a rise in blood pressure will cause pain. Pain arises from efferent nerves in the intima of the coronary arteries. Pain may be accompanied by symptoms over a wide area. May have sweating, salivation, nausea, desire to urinate or defecate and loss of consciousness. Sympathectomy and removal of cervical ganglion is successful in eighty per cent of the cases. Cardiac pain is increased by increased exertion. Going into a cold room, getting into a bed with cold sweats, or a cold bath; this cold causes the skin muscles to contract, increasing the volume of blood in the heart and distends the coronaries. Nicotine poisoning causes increased pain in heart and anger, sorrow, joy or fear may increase the pain. Aortitis may be found with a history of pain or without pain. Pain does not occur without distention.

Dr. Alvan L. Barach, New York, spoke on the "Therapeutic Use of Oxygen in Heart Disease." Uses oxygen in an oxygen tent or in an oxygen chamber, securing from forty to sixty per cent increase in the oxygen in both the arterial and venous blood. Patients with edema, after using oxygen a few days, develop diuresis; one patient lost 32 pounds in two weeks. One patient, when taken out of oxygen room at once began to be short of breath and the urine stopped; upon being put back into the oxygen room, she lost the dyspnea and began again the diuresis. One girl lived in an oxygen chamber for seven months. As long as she remained there, she remained comfortable, but if taken out she immediately had dyspnea. Another girl remained in the oxygen room for five months and was able to be taken out gradually.

Dr. Alex M. Burgess, Providence, R. I., gave a paper entitled "The Reaction to Nitrites in the Anginal Syndrome and Arterial Hypertension." The cause of pain in angina is not understood. The use of nitrites causes temporary but no permanent reduction in pressure. In a test of the blood pressure in a normal invididual, there was no drop in the systolic pressure and the diastolic pressure rose. After inhalation in anginal attacks, systolic drops, then rises and then goes back to what it was before. A hypodermic of sterile water gave the same reaction as amyl nitrite. Nephriton (1/100) under the tongue causes a rise. In a case of essential hypertension, he gave 1/100 gr. amyl nitrite and caused a drop in 15 seconds with an almost immediate rise. In a composite of 16 cases, there was no effect in diastolic and very little in systolic. In angina pectoris it gave a marked drop in pressure and complete relief from pain. In angina pectoris with B. P. 200/100 amyl nitrite stopped the pain. In another patient, glonoin relieved the pain. The pain may disappear before the drop in pressure. Pain and blood pressure do not seem to go hand in hand. His conclusions were: first, the usual symptoms vary greatly; second, there is no consistent change in diastolic or systolic pressure; third, in some cases there is a sharp fall and a quick rise; fourth, no consistent change, usually a sharp drop and then a rise to, or above, former levels. In the anginal syndrome a sharp drop and then a rise. The pain relief is instant without relation to blood pressure. Pain relief is indepednent of pressure levels but is due to action of increasing coronary blood supply.

"The Insulin Coefficient and Improved Method for the Clinical Control of Diabetes Mellitus," by John R. Williams, Rochester, New York. He stated that the diagnosis and treatment of diabetes mellitus is as yet unsatisfactory. He said that the amount of insulin which a patient can make gives a basis on which to figure how much he needs. One unit of insulin is utilized by four grams of glucose and a normal individual will make 100 units of insulin. Borderline diabetics make about 75 units; mild diabetics make 40 units; moderaetly severe diabetics make 20 to 40 units and the severe cases below 20 units. Sporadic blood and urine tests are valueless. The insulin coefficient method offers the best guide and leaves nothing to guesswork.

Dr. Harry L. Alexander, St. Louis, Missouri, discussed "Evaluation of the Skin Test in Allergy." When the introduction of skin tests was first developed it was assumed that the skin was consistently sensitive. This is fallacious. The skin, respiration and gastro-intestinal tract bear the brunt of allergic reactions. Only asthma results when it is the respiratory tract that reacts. The intradermal test in sensitive and delicate skins will mislead you. Two observers with the same agents will get different results. Hay fever is present in 93 per cent of the cases. Vasomotor rhinitis, skin and nasal mucosa are often together. Positive reactions will vary from time to time and retesting should be practiced. A negative re-

action to a test in the leg, was three plus in the back of the same person. Some portions are sensitive and others are not. If the skin test was reliable, anyone could work out a case, but since it is not, it requires deep study and other underlying conditions may have an effect.

Dr. Lewellys F. Barker, of Baltimore, discussed "The Trend in Cerebral Localization." He said there was no more fascinating subject in medicine and that much progress had been made during the last ten years, but that as yet we were only on the threshold. Tracing out the tract by electrical stimulation has accomplished much. The whole cortex was studied and mapped by Broadman. In the blood supply of the cortex it is surprising to see how closely interwoven the capillaries are and by digesting out the brain tissue and leaving only the blood vessels, it looks as though there were no brain tissue at all. The distribution of lesions in encephalitis is also very interesting. In some cases there were only small abrasions and in others the myelin sheath was destroved and in others the paravenous infection follows along the course of the veins. In some cases the basal ganglia seem to be particularly involved and distortion of the ventricles gives much information and surgeons can localize the trouble and cut down on it. X-ray information is very illuminating. There is more complete charting of the brain surface now than ever before, though some men have allowed their imagination to get ahead of the known facts. There seems to be an inter-relation between the whole surface of the brain, and the removal of an area of surface not only affects the centers involved but also affects, to a certain extent, the whole brain, making it appear that the entire surface is interrelated in what might be termed group function.

Dr. Wardner D. Ayer, Syracuse, New York, spoke on "Spontaneous Subarachnoid Hemorrhage," and gave a report of 29 cases. Aneurism is most often a congenital defect and a distinction between a subarachnoid hemorrhage and cerebral hemorrhage is impossible. Syphilis is unimportant. These hemorrhages are often due to ruptured aneurism in some part of the circle of Willis. In this type of case we get a slow pulse, slow respiration, rigid neck but not retracted, fever, sometimes high. Diagnosis is very easy if it is thought of. The spinal fluid is usually bloody and this will be followed by xanthochromia. Relief is seen on withdrawing fliud. Bloody fluid without localizing symptoms will make a diagnosis. It is better to withhold puncture 24 hours, but repeat often enough to relieve pain. He showed pictures of quite a number of aneurisms. He stated some of his cases died during lumbar puncture and others died without it, making conclusions difficult.

(Continued in June Issue)

AN UNUSUAL CASE OF PULMONARY DISEASE

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(Presented at the meeting of the Maricopa County Medical Society, held Jan. 26, 1931.)

For the sake of making it somewhat more interesting, the diagnosis was not given in the heading but you will have an opportunity to make your own diagnosis from the history, x-ray plate, and so forth.

The patient is an automobile dealer, aged 57. Although he lived on a farm while a boy, the major part of his life has been spent as a city dweller.

There is no history of tuberculosis, cancer, heart or kidney disease, in the family. He has enjoyed unusually good health throughout his life, the only sickness which he can recollect being typhoid fever 21 years ago, from which he made an uneventful recovery. Although he believes he has been well until about two years ago, his wife feels that he has been somewhat below par for some years and has had occasional night sweats.

He dates his sickness from February, 1929. He was on a train trip and during the day went to sleep sitting with a pillow back of his head. He awoke coughing violently, having fallen over to one side so that his head was inside the pillow slip. He had severe paroxysms of coughing during the next ten days. The cough was very violent but non-productive. He believes he had considerable temperature for a couple of weeks but did not take it. However, he has never felt well since that time and has gradually lost weight. During the summer of 1929, he ran a temperature every day between 99 and 100 degrees and in September had an x-ray of the chest which showed some clouding just above the diaphragm on the left. His physician felt that it was of little consequence and advised him to rest for a couple of months. During the fall of 1929, he felt weak and had an occasional slight non-productive cough, with afternoon temperature of about one degree. In February, 1930, he felt so debilitated that he gave up his work. X-ray the latter part of February showed enough cloudiness at the left base to suggest fluid and an attempted aspiration was done on March 6, 1930. There is some question whether anything was obtained, but at most it was only a few drops of clear fluid which revealed nothing. He developed what was diagnosed to be pneumonia in the left base immediately after aspiration.

In April and May he was in the Johns Hopkins Hospital, where careful studies were made and the conclusion was reached that he had a probable malignancy at the left base. He raised sputum only once while at Hopkins and it was negative for tubercle bacilli or unusual findings. Bronchoscopy was attempted but was unsuccessful. He was treated with radium over the left base. His symptoms were somewhat increased after the radiation. After leaving Hopkins he spent a month in Asheville, N. C., without relief. The month of August was spent at the Mayo Clinic. There bronchoscopy was successfully done. The exam-

ination disclosed considerable infiltration in the walls of the bronchi in the lower lobe of the left lung with a moderate amount of mucoid secretion. No foreign body was found. There was no ulceration and it was not felt advisable to remove a specimen of tissue for microscopic examination. The conclusion was reached that the condition was inflammatory, probably tuberculous. The fact that the condition had existed for eighteen months, that no superficial glands had developed, that his general condition was fair, and that there was no ulceration of the bronchus, was, in their opinion, sufficient to almost certainly exclude neoplasm in his case.

After leaving the Mayo Clinic he was for varying lengths of time in Denver and El Paso, in excellent sanatoria, with no definite diagnosis made.

He was first seen by us on Oct. 1, 1930. There were few findings of significance on the physical examination other than the lungs. The right lung showed little but there was dullness to flatness at the base on the left, with absent breath sounds and absent tactile fremitus. Above this area behind, in the middle third, was an area which showed bronchial breathing, whispered pectoriloquy and moderately coarse rales after cough. The movement on the left was very limited. There was a contracture of the capsule of the left shoulder joint so that he had very slight movement of the joint—due, he believes, to the fact that he has purposely not moved the arm for the last year. There was a slight contracture of the right hamstrings, which came on a few months previously associated with what was called rheumatism. The pulse was 90, temperature 100 degrees, blood pressure 110/66. The blood findings were: white count, 10,600; red cells 4,510,000; hemoglobin 80 per cent; polynuclears 87 per cent; monocytes 13 per cent. Feeling that the sputum should tell the tale, careful examinations were made and on the second trial, streptothrix were found. This has been confirmed on many repeated examinations since then and the streptothrix has been isolated in pure culture. About the middle of October, he started to suffer with intermittent pain in the left shoulder and upper chest posteriorly. At first it was relieved by counter irritants but later became more severe and constant and this pain has been a major feature among his symptoms. On October 19, a left phrenicectomy was done for its relief. At first it was much better but then returned with renewed force and has persisted in spite of large quantities of all kinds of analgesics.

Feeling that perhaps some relief from symptoms would be afforded by an aspiration, and a cure be effected, it was tried on Nov. 27. Although a large needle was used and a trial made in two most likely places, no fluid was obtained. About a week later a swelling appeared over the anterior chest at about the level of the fourth rib. This was several interspaces higher than the nearest site of the attempted aspiration. This swelling was tender and increased very slowly in size and after a number of days was incised and about four ounces of very thick greenish pus evacuated. This incision is still draining, the pus apparently coming from inside the chest through the fourth interspace. The pus showed a pure culture of streptothrix.

Iodides were started as soon as a diagnosis was made in October, as much as 200 grains a day of the potassium iodide being given by mouth. This was later changed to sodium iodide intravenously but so much objection was raised to the intravenous medication that it was stopped and he is now receiving about 120 grains of potassium iodide a way, without any symptoms of iodism.

Skin tests were made with the broth in which the streptothrix was grown and also an extract from the streptothrix, and, as the extract gave a fair reaction, he has been treated with increasing doses.

So far there has been no improvement, but rather a gradual loss in his general condition. There has apparently been no spread of the infection into other parts. Another vaccine is to be tried, using the actual organisms rather than the extract.

A few words might be appropriate regarding this rather rare infection. Petruschky's classification subdivides the filamentous organisms into four groups: Leptothrix, including those forms appearing as simple threads without branching; Cladothrix, those shownig false branching; Streptothrix, those showing true branching; and Actinomyces, those characterized by the presence in the tissues of "sulphur granules" in which the filaments have a stellate arrangement and clubbed ends.

Streptothrix has been reported as causing disease in the eyes, the upper and lower respiratory tract, gastro-intestinal system, spleen, kidneys, brain, bones, heart and skin. About one in six of the cases reported have been in the respiratory tract. It should be kept in mind when a patient presents himself for examination suffering from a chronic suppuration with pyemia, or from what appears to be a case of pulmonary tuberculosis except that the tubercle baccilli cannot be demonstrated in the sputum. The streptothrix can usually be found in the sputum where that infection exists. It is probably introduced into the respiratory tract by close association with vegetable products, as grain or straw—many cases on record being among straw chewers. The pathology in the lungs shows miliary abscesses and areas of necrosis in the bronchi, bronchopneumonia, invasion of the tissues and later the pleura becoming involved with perhaps extension to the chest wall.

The prognosis is exceedingly bad, only a few cases of pulmonary streptothrix infection having ever recovered. However, the earlier the diagnosis is made the better the chance that it can be overcome with a vigorous use of the iodides, vaccine, drainage, or whatever the appropriate medication may be.

CASE OF ABDOMINAL TUMOR
(Diagnostic Discussion)

J. D. HAMER, M.D.
Phoenix, Arizona

(Presented and discussed at Staff Meeting of Good Samaritan Hospital, December 22, 1931.)

Mrs. F. W., female, age 37, first seen in consultation in July of this year. Since April, she had been having diarrhea with numerous bowel movements daily and was passing blood and mucus continuously. Her hemoglobin had been down to 35 and she had received three blood transfusions. She had had complete gastro-intestinal x-ray, blood, urine and stool examinations. The only positive findings were her marked secondary anemia and much blood and pus in the stools. There were flagellates present also in the stools. She had no gastric symptoms at this time and had not lost much weight. No amebae were found, but on account of the blood and pus and flagellates, intestinal amebiasis was suspected and she was given intensive treatment, including emetine and iron and opiates but nothing affected her frequent bowel movements. She entered the hospital September 4. At this time she had almost reached the point of emacia-

tion. She was still having diarrhea and had developed considerable pain and gaseous distention over upper abdomen and had been vomiting after every meal for some time. At this time she had 3,180,000 red cells; hemoglobin 55; W. B. C. 9000; polys 80; monos., 20; urine, sp. gr. 1017; trace of albumen; few granular casts, 2-3 pus cells. Subsequent urine examination showed specific gravity as high as 1032, one plus albumen, 2-10 red blood cells; 2-8 pus cells and some mucus. Wassermann was negative and chemical test for bile in the blood was negative. Blood, pus and flagellates were present in the stools.

Physical examination showed a very much emaciated female, pulse rate 120; the blood pressure was 112/80. Head, neck, mouth, lungs, heart were negative. No abnormal reflexes. There was a large rather smooth tumor in the left abdomen which was slightly tender and freely movable and extended from the costal margin to the pelvis. During the first day in the hospital she felt a slight numbness in her right arm and a few minutes later she had a complete paralysis of the right side of her body. At this time there were no cerebral symptoms and no aphasia. Examination of the colon at this time with barium enema showed no definite obstruction, the colon filling promptly as fas as splenic flexure. At this point, pain was complained of and spasm of the bowel was evident and as the barium entered the transverse portion of the colon there was spasm at this portion of the bowel and evidence of intolerance. Barium suspension passed on into the hepatic and ascending colon these showing normal contour. The findings are quite conclusive for some type of lesion involving especially the transverse portion of the colon, the irregularity in contour being most marked at the junction of the transverse with the splenic flexure. The mass that could be felt in the upper abdomen appeared to lie in front of descending colon and was believed to be an enlarged spleen. One consultant thought at this time that the tumor was the left kidney and made a diagnosis of hypernephroma. Another thought the tumor was the spleen and his diagnosis was Banti's disease and he advised splenectomy. The patient was given 500 c.c. of blood after which the red cells rose to 4,000,000, and hemoglobin to 60. When the opiates which were given to check the diarrhea were withdrawn, patient ceased to vomit and was able to eat fairly well. There was some improvement in the hemoplegia and patient could flex the thigh and move the right arm some until about eight days after the first stroke when she had an extension of the hemiplegia which produced complete paralysis of the entire right side which also involved the right side of the face and produced an aphasia. After this she never moved the arm and leg. She received two more blood transfusions. During the first four weeks in the hospital her temperature varied from normal to 101 and 102. One day it rose to 104. Pulse ranged from 100 to 140 and respirations from 20 to 30. The temperature curve shows a gradual rise of the mean temperature, however. She had no reaction after the first transfusion. A very slight reaction after the second. After the third transfusion on September 22nd, her temperature rose to 104. Up to this time patient had been doing fairly well. Withdrawal of opiates which had been given to check frequent bowel movements resulted in relief from vomiting. In fact all gastrointestinal symptoms were considerably alleviated. From the time that the hemiplegia became complete, patient complained of considerable headache on the left side. There were no eye symptoms and no increase in blood pressure. There was some improvement in the aphasia at times but following the reaction after the last blood transfusion, patient's sensorium was more or less clouded. On October 1st, patient had a severe chill and temperature rose to 105.2. Maximum daily temperature was 103 until October 5th when patient had another severe chill and temperature rose to 106.2. On the morning of October 10th, patient had a severe chill and temperature rose to 107. By five p.m. it had dropped to 98 when she had another chill and it rose to 105 again. After this, her temperature gradually came down and her maximum temperature was 101. During this time blood was examined for malaria but none were found. During this time there seemed to be an increase in size in the abdominal tumor. It was freely movable and could be palpated definitely in the left lumbar region. It was fairly smooth, not especially hard. At times it was tender and what was apparently a very definite splenic notch could be palpated.

Blood pressure on October 12th was 100/60. On October 8th, red count was 4,280,000; hemo. 80; white count 8,700. For several days prior to October 14th, patient had been eating fairly well and at times was having almost normal bowel movements. Patient and family both insisted on operation and on October 14th, under sodium amytal anesthesia intravenously, and a few whiffs of ether, a laparotomy was performed. Patient made a fairly rapid recovery with practically no reaction following the operation. Condition continued about the same and on October 20th she was sent home in an ambulance. From this time until the 15th of November her condition remained practically stationary. There was no change in her cerebral symptoms. At times her bowel movements became rather frequent. During the night of November 15th she became suddenly worse and died in about two hours.

DISCUSSION

In reviewing the salient features of this case, I would like to call attention to several which I believe have a direct bearing on our diagnosis; these are long standing diarrhea with blood and mucus in the stool, flagellates found in the stool examination, extreme emaciation, secondary anemia, a large, smooth, freely movable tumor in the left abdomen, spasm and intolerance of the transverse colon with pain elicited at the splenic flexure, a transient hemiplegia, later a complete hemiplegia, with aphasia, of the right side, and chills and fever in the late course of her disease, together with a rapid pulse, but with no elevation of the blood pressure at any time. No signs or symptoms of obstruction of the bowels were present.

I believe the main pathological feature of the case is the tumor mass, and a diagnosis of this condition must be made if we are to account for the primary factor leading to the death of the patient. One would think of a large ovarian cyst, but apparently the physician on the case did not consider this tumor of that type; at least we have no information relative to a pelvic or rectal examination. And we do not know whether the tumor was flat, dull, or tympanitic to percussion. One might think of a large diverticulum of the bladder, but the urinary fnidings are not conclusive, and we have no report of a cystoscopic or other urinary tract investigation. I do not believe that this case was one of Banti's disease, as represented by the history, especially. Banti's disease usually runs a more chronic course, and is quite uniformly notorious in that the patient has attacks of hematemesis, and this point alone is often diagnostic. It is true that these cases get quite a secondary anemia after a few years of the disease, but they also show

a leukopenia in uncomplicated cases, and I should imagine a case of Banti's in a patient as sick as this one, that we would find jaundice, evidences of cirrhosis of the liver, ascites, and a marked albuminuria. However, in this case, we have some evidences in favor of Banti's, such as marked anemia, a tumor mass, with a palpable notch, and digestive disturbances. A chronically enlarged spleen may also occur from some other etiological cause, but the evidence we have here cannot support any of the following considerations: A large "monkey spleen" from tuberculosis; syphilis with a negative history and Wassermann; chronic malaria in spite of late chills and fever; Hodgkins' disease with no other information for support; leukemia; pernicious anemia; polycythemic splenomegaly from the lack of positive blood findings; or associated rare diseases of the liver and spleen, as hypertrophic cirrhosis of Hanot, Gaucher's disease, and new growths of a benign or malignant character, which, although occurring occasionally, are rerely diagnosed.

The pancreas must be consdiered. Cysts and other types of tumors occur. There is nothing here suggestive in the stool examination in favor of pancreatic disturbance. Also, the symptoms of pancreatic tumor are interpreted more from the standpoint of the regional effects, such as gastrectasis from pressure exerted on the duodenum or pylorus of the stomach, portal vein pressure giving us a picture of cirrhosis with ascites, persistent jaundice and deep color when the common duct is compressed, and symptoms of intestinal obstruction or paralytic ileum from interference with the mesenteric vessels, or symptoms of an abdominal aneurism if the aorta is compressed. Cysts of the tail or body of the organ, or other tumors, occur, and have to be differentiated from hydronephrosis, hypernephrosis, omental or ovarian cysts, suprarenal tumors, cold abscesses, and retroperitoneal cancer (sometimes called Lobstein's cancer). Most of the pancreatic tumors are situated between the greater curvature of the stomach and the transverse colon, and transmit bruit from the aorta but in this case I do not feel that the tumor mass was located in the position indicated. We should also expect to find a tumor mass of the cisterna magna in a slightly different location than this one. These types of tumor masses occur occasionally.

Is the tumor mass a hypernephroma, or other type of kidney tumor? I do not believe so, although we have no findings recorded except a couple of urine analyses. Unilateral hydronephrosis occurs, and in non-infective cases the urine is quite clear, the specific gravity is low, traces of albumin are found, and the mass is palpated in the renal region. It is characteristic of this type of tumor, especially when occurring in a movable kidney, to periodically empty itself with the passage of a large quantity of urine. In infected cases, of course much pus is found in the urine. In hypernephroma, generally the first indication is hematuria, and the lack of this symptom alone would be against a diagnosis of this condition. However, in these cases patient may have pain, intestinal disturbances, and progressive emaciation, and one may feel what seems to be a notch in the tumor mass, because of the hemispherical projections which correspond to the distended sections of the kidney. This type of tumor is also malignant, and can metastasize, and if this patient had one more symptom (hematuria), I would feel very strongly toward hypernephroma, or some other type of malignant kidney tumor.

Another condition which must be ruled out is diverticulosis. This is an inflammatory process of the colon, usually in the descending or sigmoid portion, chronic in nature. In some cases, where many diverticula are involved, adhesions form to the surrounding structures, and a tumor mass consisting of dense fibrous tissue forms, including diverticula with fecal concretions, and sometimes multiple small abscesses. At times, secondary invasions of cencerous tissue develop. During the development of this condition, the patients have signs of chronic bowel obstruction and constipation, although diarrhea may occur, with vomiting during acute exacerbations. No blood is found in the stool as a rule, and leukocytosis is present. Often a mass is papable. This patient could have diverticulosis, but ordinarily an x-ray of the bowels will clinch the diagnosis by the characteristic findings.

One could imagine that an infestation of the colon with a long standing attack of flagellate infection might cause diverticulitis, through infection, ulceration, and colitis. And this could occur. However, in considering flagellate infection, one must be very cautious in trying to prove a case of diarrhea as due to flagellates. Here we do not know just what type is present, the Trichomonas hominis, Chilomastix or the Giardia. The exact relationship of the two former to diarrhea is doubtful in the light of our present knowledge, (but at times, the Giardia can and does produce severe diarrheal symptoms, even dysentery. In severe Giardia infections, the stools contain mucus, blood and sometimes pus, there are colicky pains, tenesmus, marked anemia, weakness and digestive disturbances. Even then, however, the diarrhea may not be due to the flagellates, but another condition present might cause the parasites to appear in an active condition in the stool. It has been proved that any inflammatory condition of the bowels favors a flareup in the number and virulence of an otherwise quiet infection; conversely, many observers still believe that many cases of flagellate infection per se do not get marked pathological effects, but when present in large numbers, may keep up or make worse a condition produced by another cause. However, when recognized, the removal of these flagellates generally benefits the patient, and often causes amelioration of symptoms. With this patient, I believe, in the presence of other findings recorded, that the flagellate infection is only a minor consideration to the main issue.

From a consideration of the foregoing discussion, I am now ready to offer a diagnosis without much further comment. I have not said anything about malignancy of the bowels, and it is in this suggestion that I am pinning my hope for a correct diagnosis. I believe the patient had a malignancy, probably originating in the splenic flexure of the colon, and probably extending to some of the adjacent structures, with flagellate infection of the bowel also. In addition, of course, the findings given contribute other subsidiary diagnoses; right sided hemiplegia, secondary anemia, and cachexia.

I am at a loss to explain the chills and fever which the patient had prior to operation. It is undoubtedly a septic process and may have originated from perforation or some other infective process at the site of the tumor, possibly with abscess formation there. The hemiplegia too is difficult to explain. Its onset was not typical for hemorrhage. The onset was fairly typical for thrombosis of one of the arteries, because, in this condition, we sometimes get premonitory signs, with headache and motor weakness, low blood pressure usually and never signs of increased intracranial pressure. Metastasis of a malginancy could account for the hemiplegia also, as could a metastatic abscess. Just

which one accounts for this condition, I am unable to state.

OPERATION

On October 14th, under sodium amytal anesthesia, a left rectus incision was made. A large tumor mass, which was freely movable and could be raised up from the underlying structures, was found. The spleen was normal in size and the liver was normal in size. There was no evidence of any metastatic tumors or glands in the liver, omentum, mesenteric glands nor in the pelvis. The colon and stomach were firmly adherent in the tumor mass. The entire mass seemed friable and bled easily. The right kidney was normal but the left kidney could not be palpated and the diagnosis was thought to be polycystic kidney. So the abdomen was closed at once.

REPORT ON AUTOPSY

At autopsy the abdomen was opened and the omentum was firmly adherent to the abdominal tumor. There was a large friable mass which seemed to involve the transverse and descending colon and was adherent to the fundus of the stomach. The left kidney was separated out of the mass and was perfectly normal. There was no evidence of any metastasis in the liver, spleen, or pelvis. The head was not opened.

Pathologist's Report: The gross specimen consisting of a portion of the transverse colon and pancreas. This colon tissue was involved in extensive necrosis and in some portions the entire wall of the bowel was destroyed. Other areas showed nodular destruction. Sections of these nodules showed characteristic cellular structure of adenocarcinoma. The pancreas was involved in the necrotic process but apparently the new growth originated from the colon.

COMPOUND FRACTURE WITH GAS BACILLUS INFECTION: RECOVERY.

A. C. KINGSLEY, M.D.,
Phoenix, Arizona

(Case Report to Staff Meeting of Good Samaritan Hospital, on Feb. 23, 1931.)

American boy, white, aged 9, living about seven miles from Phoenix. On January 21, 1931, at about 4:30 p.m., while riding his pony was struck by an automobile and thrown to the ground. He was taken home, and received first aid by a physician neighbor. He was taken to the hospital at 9 p.m., and examination revealed a punctured wound in the right popliteal space with considerable swelling around the knee and an evident fracture of the femur close to the knee. He was in shock. 1500 units tetanus antitoxin was administered and the leg put in a splint. An x-ray order was given. The following morning, when seen at 8 a.m., his temperature was 100, pulse 120; there had been considerable bleeding during the night and he was in some pain. As the pictures had been taken, it was decided to wait until they were developed before proceeding with the reduction of the fracture.

Shortly after 9 a.m., I was called to the laboratory to examine the films which showed compound, comminuted fracture at the lower end of the femur, with evidence of gas formation in the soft tissues, extending along the posterior portion of the leg as far as the upper margin of the film. Examination now showed a foul discharge from the wound in the popliteal space with the characteristic odor of gangrene, and with crepitation along the outer aspect of the thigh, which was also very markedly swollen.

Following consultation with Drs. Greer and Goodrich, immediate operation was decided upon and performed at 11 a.m. The thigh was laid open with four longitudinal incisions, and tubes were inserted through the wounds, which were irrigated every thirty minutes with Dakin's solution. Following the operation, 50 units of gas gangrene antitoxin were given intravenously and 50 more in the muscle of the thigh. This dose was repeated the following day. On the 24th, 25th and 26th, 100 units were given intravenously and 100 units in the thigh.

On the 23rd, the pulse was 132, temperature 101, and respirations 30. There was a large amount of discharge from the wound, but the odor did not seem so pronounced. He suffered considerably from urticaria after the injections, but had slight reaction. The odor and destructive process disappeared within the week, from which time he made uneventful recovery as far as the gangrene was concerned.

He appeared at the office a few days ago. The wounds have practically healed, the fracture is firmly united and he is beginning to use the leg. In closing, I wish to say that our first intimation of serious trouble was shown by the pictures. The boy was kept at home five hours, and because of his condition on entering the hospital, it was thought best to wait until morning to take the pictures. This was fortunate, for had they been taken earlier, the gas would not have been discovered until symptoms of the infection developed, probably too late to save the boy's life.

Discussion of Case and the Use of the Steinman Nail in Fractures.

JOSEPH M. GREER, M.D.
Phoenix, Arizona.

This is a case of compound fracture of the lower end of the right femur. It was more than that, it was a comminuted fracture with quite a large loose piece of bone, and, in addition, a gas bacillus infection.

In this particular case it was first thought, as so many times is done in compound fractures, that the first thing to do was to treat the wound and clear up the infection and then to take care of the fracture. Upon second thought it was decided to put in a Steinman nail and get as good position of the bone fragments as possible while treating the infection and wound. This later was proved to be the correct procedure. Therefore the nail was inserted in the lower fragment of the femur at the time of operation in which the muscle sheaths were opened in order to treat the gas bacillus infection. Care was taken to insert the nail above the epiphyseal line in the lower fragment yet as close to the lower end as possible. This point is very important in children because, if the nail is inserted through the epiphyseal line, there is danger of pulling off the epiphysis entirely or interfering with the future growth of the bone. Traction was then made with the thigh and leg in the vertical position, with a Thomas arm splint for additional support laterally and anteroposteriorly. The clevis for the Steinman nail was fastened anterior to the knee and it just so happened in this case that the weight of the leg acted as a lever with the nail as a fulcrum and caused a slight backward displacement of the lower fragment. This was remedied by removing the clevis from the nail and applying the traction by means of a wire up over the sole of the foot over a spreader block allowing the leg to assume a more extended position with the knee straight. The weight of the leg was also supported by means of mole skin traction. This readjustment had a tendency to pull the lower

fragment forward into better position. It was very fortunate that the nail was used in this case as in less than three weeks' time the union was very firm.

It would seem that the Steinman nail is most invaluable in the treatment of many compound fractures, as it allows reduction and the maintenance of position while the wound is being treated. It facilitates the care of the wound by allowing treatment and dressings without the danger of getting the fragments of the fracture displaced. It used to be the policy of many surgeons to treat the wound first and when the infection was cleared up, or it was found that there was going to be very little trouble with the infection, attention was then turned to the treatment of the fracture. It would seem that many times this procedure is not the best, and would have no doubt resulted in malunion in the above case which would have necessitated secondary operation. The sooner the fracture can be reduced and the better the fragments can be held in position the better our results are going to be.

For example, a compound comminuted fracture of the leg with marked laceration of the muscles, skin, etc., was treated on a Thomas splint and traction was maintained by means of a Steinman nail through the os-calcis. He is walking now with very little limp and only about one-quarter inch shortening. I do not know of any other way in which these fragments could have been held even close together. As someone around the emergency room that morning said, he came in with his foot in his hip pocket, and the leg felt like a bag full of loose rocks. Therefore it would seem that we should consider this method of securing and maintaining reduction in our compound fractures more than we do.

In many cases of simple fracture the use of skeletal traction by means of the Steinman nail is of value. For example, spiral fractures of the tibia; we all know how they have a tendency to rotate and override. Very frequently this can be prevented and good position can be had by means of a nail through the os-calcis. As to infection caused by the nail. This is possible of course. There is usually a little drainage from the soft parts after removal of the nail for a few days. I have never seen an infection that amounted to anything from the use of the nail. I might say that I have from the use of the tong however.

It is not always so easy to sell the idea to the patient, however. Well I remember one case that discussed with his friends and his family physician, for two days, my cruelty and insanity for suggesting such a terrible thing as the driving of a nail right through his heel. He consented, however, and got a good result. Another patient, a femur case, wanted to know if such a thing had ever been done before. When he was told that it had been he wanted to know how soon the patient died afterwards. However, the pain of the nail is very little and the danger of serious infection is very remote.

In concluding my remarks, I might say that it is believed that skeletal traction by means of the Steinman nail is valuable in the treatment of many compound fractures; it facilitates the holding and controlling of the fragments and the dressing of the wound; the danger of infection is really not a danger at all. The patient is very comfortable. The nail is also valuable in holding many simple fractures that cannot well be held by the application of skin traction and the application of splints.

REPORT OF DEATHS IN GOOD SAMARITAN HOSPITAL (PHOENIX) FOR JANUARY, 1931.

(February Staff Meeting)

J. D. HAMER, M.D.

There were about three times as many deaths on the medical service last month as on the surgical service, and none on the obstretrical service, and, on the whole, the charts were quite satisfactory for review. An attempt to elaborate even the salient points of each case would make this report entirely too long, in view of the fact that there were seventeen deaths last month. There were three autopsies recorded, two on medical cases, and one on surgical.

Case 10665 was a male of 72 years of age, who died of cerebral hemorrhage of the left side after six days in the hospital. The diagnosis was confirmed by autopsy, and, in addition to a left cerebral hemorrhage with extensive involvement of the cerebral cortex, there was found arteriosclerotic disease of the kidneys, passive hyperemia of the liver and both lungs at the bases, and generalized arteriosclerosis. Case 10478, also a male, of 62, expired of right-sided hemorrhage, after a residence of nineteen days in the hospital. This patient, in addition to the signs of cerebral hemorrhage, showed a decided dementia, and certain features of the case made the diagnosis of gumma of the brain probable, but a thorough study of the case indicated that this was not the cerebral lesion in question. Case 10578 was a male of 34, who expired two days after admission, with a diagnosis of cerebral hemorrhage. The information as given on the chart was rather meager, and in view of the age of the patient (34), it would have been interesting to know what was the cause of this cerebral accident.

Case 10379 and Case No. 10526 were burn cases, the former a child of 4 years, and the latter a child of 13 years.

Case 10294 was the case of an orderly in this hospital who succumbed to a lingering illness of typhoid fever. The diagnosis was confirmed by positive Widal. The source, or probable source, of his infection was not disclosed.

Case 10457 was that of a female of 51, who died on the fourth hospital day, and while her history and complaints would point to the pelvis, because of pain and excessive bleeding, a study of the case indicated to the physician a diagnosis of endocarditis, pyelonephritis, septicemia, adenoma of thyroid and bronchopneumonia. An autopsy on the body virtually confirmed the diagnosis, as, bilateral pyelonephritis as the primary cause of death with bilateral bronchopneumonia, mitral stenosis, chronic passive congestion of the viscera, and multiple myomata of the uterus, as contributory causes. A blood culture was not reported.

Case 10561 was a male of 45, who died of lobar pneumonia. Case 10704 was a male of 77, who expired of hypostatic pneumonia, chronic mitral valvular disease, myocardial degeneration, cystitis, and duodenal ulcer. Case 10546 was a male of 60 who expired of bronchopneumonia.

Case 10540, a female of 44, had a diagnosis of encephalitis, secondary to influenza. This was an interesting case, in many respects. She had had meningitis at the age of six, and had lost one brother and three sisters of the same disease; one brother is living, who also had meningitis; while the mother had died of tuberculosis. The present history was that of recurring severe headaches, fever, and acute attacks of mania, since Jan. 26—two weeks before admission. The physical findings of

a positive nature were rather meager, there being recorded a blind left eye, tenderness in back of the neck, an irregular heart and respiration, and tenderness over entire abdomen. The laboratory reported 840 cells in the spinal fluid, globulin greatly increased, negative Wassermann on the fluid, and no bacteria. White count was 29,800, with 95 per cent polys. Urine showed three plus albumen, bacteria, 2 to 5 red blood cells, and 5 to 10 white blood cells, and a few myalin casts.

Case 10462 was a male of 34, who expired of pulmonary tuberculosis.

Case 10698, was a child of 8, who expired about 36 hours after an operation, and before an adequate post-operative study could be made to make a diagnosis. This child had been sick a week, and was brought into the hospital with a history of having nausea, fever, delirium, night sweats, and absolute neglect so far as care was concerned at home. The child was in extremis upon admission, and, while four physicians were examining her and consulting, fluids were being administered and other measures carried out for the relief of her symptoms, especially the abdominal distention, dehydration, and acidosis. The child was operated for probable appendicitis, in view of her findings, and consensus of opinion of the physcians who saw her. However, no appendicitis was found and no other abdominal disease, except an excessive amount of fluid in the peritoneal cavity. The white count was 5,600, with 82 per cent polys. The child expired several hours later, and subsequent examination revealed no localizing signs that would point toward a diagnosis. It was thought that the most probable diagnosis was an influenza of the gastrointestinal system.

Case 10625 was a male of 24, who was operated upon for an inguinal hernia on Feb. 18, and subsequently developed a bronchopneumonia, and expired on Feb. 22.

Case 10404, a child of 10 years, expired on Feb. 5, ten days following appendectomy. At the time of operation the appendix had ruptured, and fecal fistula followed, with subsequent loss of life through toxemia.

Case 10670 was a male of 16 years, operated upon for a ruptured appendix, who expired on the fourth post-operative day. This case, like the one just mentioned above, was not seen in time to operate sooner, and both were in very bad condition on entering surgery. This case, soon after the operation, developed signs of obstruction of the bowels.

Case 10548 was a male of 43, who entered the hospital first on July 14, and was discharged on August 11, much improved after the performance of a very extensive thoracoplasty. The patient suffered from pulmonary tuberculosis, tuberculous empyema, and thoracic fistula. The empyema had developed following a spontaneous pneumothorax in May, 1930, and the thoracic fistula remained after drainage of the empyema, done three weeks before this first admission. The patient re-entered the hospital on Feb. 10, for further rib resection, in an effort to eradicate the remaining portions of the ribs on the affected side and to secure adequate drainage. Operation was done under ethylene on Feb. 11, and patient expired the night of that day, apparently from shock in the third degree. An autopsy on the case made the diagnosis of chronic tuberculosis of the left lung with almost complete collapse, chronic pericarditis with adhesions, and dilated right heart.

A CASE OF PELVIC TUBERCULOSIS WITH GENERAL EXTENSIONS

R. J. STROUD, M.D.
Tempe, Arizona

(Presented at the meeting of the Maricopa County Medical Society held Jan. 26, 1931.)

Patient, an American female, aged 32, married, with three children. Occupation: housewife.

Past History: Was always well and strong, having the usual childhood diseases but no serious illnesses. Three months ago, while in New Mexico, began to be nervous, lost weight, and became irritable—all described as a nervous breakdown. Patient flowed for three weeks, stopped for two weeks, and began again. Has done this more or less ever since. She has grown more nervous and weaker ever since and has lost 25 pounds in weight. Weighed 128 pounds at that time.

Was seen by me for first time on Sept. 7. Had been seen by physicians since coming to Arizona and was told that she was tired and worn out and anemic. She had never been examined, even for the taking of the pulse. When seen by me she had a temperature of 100. Was not conscious of having a rise in temperature and said that she could have that much fever, or more, without being aware of it. She believes she had no chance for pregnancy. She has had clots and lately a little bit of odor from the vaginal secretions. At this time and after examination, she was told that she might have to undergo an operation but wished to avoid it. Treatment seemed to give her relief immediately. On Sept. 18 she weighed 91 pounds and had no fever. There never was any back pain or tenderness at any time. On Sept. 20, she began having chills and fever again with temperature as high as 103. But gradually improved after being given sedatives, until Sept. 28, when she had chills and a rise of fever to 104. At this time she was told an operation was imperative and was ordered to the hospital. Pulse, 85 to 105; respirations, 18 to 20.

Physical examination: Age, 32; height, 5 feet, 5 inches; weight, 91 pounds. Patient looks pale; face pale and anemic and waxy in appearance. Eyes react to light and accommodation. Tonsils present but not diseased. Teeth, good; no enlargement of neck; chest essentially negative. Blood pressure, 104/70; heart somewhat rapid but not enlarged. No murmurs. Abdomen slightly spastic all over with a decided board-like appearance above the pubes and at the left and with the feeling that there is a mass below; this mass is very tender. During the period she was ill there was pain over the left side, felt more particularly just inside and below the iliac crest and seemingly within the bone. This pain was transmitted down through the front of the left thigh and was continuous; the left thigh in anterior portion was swollen and board-like along the middle third, 6 inches long and 3 inches wide. This peculiar mass has been constant by bimanual examination. At first impossible to examine because of pain. Finally demonstrated a mass to left of median line which was tender to touch. This mass was larger at each examination last 5 days. Uterus appeared longer than normal and could have been an early pregnancy. On the first examination, dark bloody material was found on the examining finger and had slight odor. Since that time there has been no secretion. Cervix appeared normal. Bones and joints normal; there is no tenderness in the sacro-iliac region around the joints and no pain is complained of at this place. Urine essentially negative except for hyperacidity. Blood count not taken before entering hospital.

Diagnosis: Some inflammatory mass situated at the region of the left fallopian tube.

Operation: Laparotomy. Mid-line incision from unbilicus to pubes. At the left side there was a large mass of intestines bound together by adhesions, with a mass of mesentery bound up with the rest, as large as a hen's egg. In separating the mass, a pus pocket, under some tension, was found lying above the left fallopian tube. Some two ounces of pus were removed and two drains inserted. The tubes and ovary were not seen, as a strong wall of adhesions was between the cavity and these organs. The patient's condition did not warrant further investigation.

She had a stormy time and was supported by fluids. On the eighth day she became conscious of her surroundings and did not quite remember how she reached the hospital, the toxemia being very profound at the time of her entry. On the twelfth day the nurse reported an enema came through the abdominal wound, establishing the fact of a fecal fistula. After three weeks the patient returned home, the wound still draining; the drainage, however, being almost entirely of fecal matter. The skin at the line of incision gradually spread, and the patient had periods when there was very little drainage and she felt better during this time, except for the last two or three days before the drainage became profuse; she would then have an immense amount of drainage, following a rise in temperature and malaise.

Dr. Milloy saw her with me in consultation at the end of November. She had had ten good days before he saw her, and he advised direct sunlight on the wound. This seemed to give her some relief. He further advised against any radical procedure at that time. About the middle of December the patient ran a high temperature and complained of a pain in her right side which proved to be pleuritic, and as she had had more or less continuous fever, her lungs were gone over thoroughly and a diagnosis of a fibrous type of tuberculosis was tentatively made. At this time it did not occur to me that this had anything to do with the lack of healing of the fistula. At the time of the first examination and during the first two weeks, the cervix was seen three or four times and appeared quite normal.

Some ten days ago Dr. Ploussard saw the patient with me and was very suspicious and asked about a Neisser infection. It was my idea that such was not the case; my diagnosis, from the history of the bleeding and general course of the case, was that of a ruptured tubal pregnancy, and that some infected material from the tube had found its way into the abdominal cavity, making a localized abscess. It was decided before anything radical was done, at least to get an x-ray of the intestines, and by this method see just where the fistula was. Doctor Ploussard examined the cervix, took a smear and thereby made a surprising discovery. The cervix, at this time, was swollen, reddened and looked like a beefsteak, with some pus exuding. The patient did not menstruate during this time. I was much surprsied when Dr. Ploussard told me the smear contained tuberculosis organisms, as this is quite an unusual find.

After this diagnosis I looked at the wound where the skin had separated, and the picture of granulations in the musculature was that of a more or less characteristic pharyngeal tuberculosis. The diagnosis, therefore, is miliary tuberculous. It is possible that there was some tuberculous trouble with the tube, and a ruptured tubal pregnancy, perhaps, lighted the whole picture.

I should like to call your attention to the early history. This woman and her husband both told me very distinctly that she had been seen by physicians both in Albuquerque and in Arizona many times, none of whom ever made any examination, so that the early part of her history is really obscure.

DISCUSSION

DR. C. N. PLOUSSARD: I saw this case in consultation with Dr. Stroud, January 16th last. Patient a young female, lying in bed, very thin, anemic, showing signs of a long drawn out toxemia. Dr. Stroud has given you the findings obtained by a thorough physical examination, so it is not necessary for me to repeat.

During the course of physical examination a cervical smear was obtained because of the profuse watery vaginal discharge and the edematous, granular, eroded appearance of the cervix. Bimanual examination did not reveal any definite tender masses, although tenderness was general in region of uterus and its adnexa. The laboratory stained cervical smear with Gram's stain and, finding many rod-shaped bacilli, decolorized stain and restained for tubercle bacilli and found large numbers of acid-fast bacilli, morphologically tubercle bacilli.

Because of the downward progress of patient's condition, showing signs of an infective process in pelvis together with a fecal fistula apparently high in small intestines, causing apparent signs of starvation, an opinion as to further surgery was indeed difficult to arrive at. But the question was easily settled when an explanation of the entire illness was revealed by the laboratory findings in examining cervical smear.

This patient, no doubt, has a generalized tuberculosis. She has cough, elevations in temperature and rales in chest. The symptoms referable to the gastrointestinal tract are those of chronic infection, no doubt, tuberculous, and the pelvic infection is, without doubt, tuberculous.

Prognosis is indeed grave. The patient probably will gradually become weaker until death ends the scene.

CASE REPORT AND DISCUSSION
(Headache and Dizziness)

(Case 16301, Case Records of Massachusetts General Hospital, from New Eng. Jour. of Med., July 24, 1930, p. 174.)

Case Report

A Russian thirty-eight years old, a restaurant counter-man, entered January 10 complaining of headache. He had some language difficulty, was markedly slowed mentally, and dropped asleep if his attention was not held. He seemed quite intelligent, however, and the history was thought to be reliable except in details.

December 15 he first noticed headache and periods of dizziness. The following day the headache was so severe that he had stayed in bed since that time, going out for his meals. The headache had always been frontal, but had occasionally radiated over the brow to the right. He had periods of dizziness lasting five minutes on getting up. Since the onset the sight of food had nauseated him, and until a week before admission he had had a very bitter or sour taste in his mouth on seeing or tasting food. On December 17 he vomited from six in the morning until noon. On December 19 he vomited two or three times and on December 21 once. For two weeks his appetite had been very poor. Two weeks before admission on getting up everything went black before his eyes for several minutes. A week before admission he found that after reading for a few minutes the print looked like

a solid black line. At the same time he noticed a buzzing in his left ear. Since the onset he had had increasing weakness.

All his life he had had attacks of extreme nervousness and irritability, for which he had frequently been beaten. Eleven years before admission he had an attack of palpitation and marked dyspnea. He spent two months on a farm and had had no more of that trouble. Between one and two years before admission he had night sweats and severe cough for two months with considerable reddish-black sputum, on one occasion blood streaked. A physician advised him to go to a hospital. He spent two months in the mountains and gained fifteen pounds. He denied venereal disease and the use of alcohol.

Records of the Out-Patient Department show that he came on August 24, a year and five months before admission, complaining of vague chest pains, dry throat, occasional huskiness and rare dry cough of two months' duration, keeping him from working as a porter. He had gained eight pounds in two months. Examination was negative except for possible fullness over the suprasternal notch. A Hinton was negative. X-ray examination showed several small rounded shadows of increased density with sharply defined margins in both lung fields. At the angle between the heart and the diaphragm on the right there was a large area of increased density which obliterated the outline of the right border of the heart and the diaphragm. The costophrenic sinus on this side was hazy and shallow. There was no evidence of cavity. The heart shadow was roughly triangular in shape, somewhat increased in size. On September 7 he reported feeling better, and on October 5 very much better. He had been working for three weeks. He now had a vague substernal distress on getting up in the morning. Examination was negative except for flatness throughout the abdomen except over the stomach, probably due to obesity and fluid in the intestines. October 19 he complained of more or less continuous pain at the base of the skull and in the frontal region, worse in the morning. November 16 the pains in the chest had returned, forcing him to stop work. He told of coughing up blood several months ago. He had lost four pounds in two weeks. Another x-ray examination showed that the process in the chest previously described had largely disappeared. The only variation from the normal still present was thickening about the right hilus and the right descending bronchus. November 23 he felt very well, had gone back to work and had regained the weight he had lost. He was referred to the Pulmonary Clinic, but did not report there, and was not seen again for eight months. July 15, six months before he entered the wards, he returned to the Out-Patient Medical Clinic. He had felt very well and had worked steadily without symptoms until a week before the visit, when after lying out on the beach for three hours he had pain in the left flank which had grown worse. It was aggravated by motion and radiated up the left costal margin. He had pain when he lay on the left side, but was comfortable on the right side. Examination showed pallor and a palpable mass, presumably the kidney, in each flank after deep inspiration. The liver edge was one to two centimeters below the costal margin. The knee jerks were sluggish, the ankle jerks not obtained. July 29 he reported that the pain gradually passed off in a week. He had had slight pain in the right side of the throat for two days. Examination showed small ragged tonsils, probably chronically infected, and a palpable slightly tender gland in the right anterior chain. He was not seen again until January 2, eight days before he entered the wards. His chief complaint was then dizziness. He was referred to the Eye Clinic. Examinatoin of the external eyes was negative.

Clinical examination showed a well nourished man with slightly pale and yellowish skin, dry on the insides of the upper arms and markedly cornified on the feet. Face asymmetrical; right lower jaw higher than left and distance from midline to right center of the mouth less than to the left. Palate deviated to the right. (He insisted that he had had the facial asymmetry all his life.) The left lung showed slightly diminished resonance throughout the back. Descent of the right lung slightly less than that of the left. Apex impulse of the heart seen and felt 9 centimeters from midsternum, one centimeter outside the left border of dullness. Occasional doubling of the diastolic sound at the apex. No other abnormalities were found on general physical examination.

Neurologic examination. Fundi: bilateral papilledema. Left facial weakness. The eye did not seem to be involved. Tongue protruded in the midline without tremor. Knee jerks obtained on reenforcement only; otherwise the reflexes were normal. Grips equal though rather weak. Co-ordination tests well done. All sensory tests normal.

Urine: amount not recorded; findings normal. Blood: hemoglobin 80 per cent, reds 3,910,000, leukocytes, 15,300.

Temperature 96.1° to 98.4°, with a terminal rise to 104.4°. Pulse and respirations normal except for a terminal rise to 100 and 31.

X-ray examination of the skull was negative. The sinuses showed moderate thickening of the lining membrane without retained secretion.

A nose and throat consultant reported on January 10, "The nose shows marked swelling of the right middle turbinate and the inferior turbinate. Membrane pale and boggy, with secretion on the right side."

January 11 the patient showed an unsustained horizontal nystagmus. There was no suggestion of Romberg. Examination of the visual fields and acuity was of little value because the patient was unable to follow directions.

January 13 he complained a good deal of headache. A lumbar puncutre was done in the fourth-fifth lumbar space, and 12 to 14 cubic centimeters of clear colorless fluid withdrawn under increased pressure,—initial pressure 260, combined jugular pressure 630 to 270, final pressure 70. The headache was much relieved after the withdrawal of a few cubic centimeters. The fluid showed no cells; alcohol, ammonium sulphate and Hinton tests negative, total protein 74, colloidal gold 5443332110, sugar 75.5, chlorides 720. That day a nodule was palpated under the left costal margin, and a mass descending from under the right costal margin on deep inspiration. The next day the patient complained of right occipital headache radiating forward to the frontal region, and said he had not slept all night. The following morning he was found unconscious and could not be roused. He was sweating profusely. The rectal temperature was 103°. Two hours later he was still unconscious, flaccid, with absent tendon jerks and no response to plantar stimulation. The right pupil was five millimeters in diameter, the left two millimeters. Neither reacted to light. The breathing was easy and rather rapid. Numerous coarse moist rales were heard at both bases. Another lumbar puncture done in the fourth-fifth lumbar space gave 12 cubic centimeters of colorless opalescent fluid under an initial pressure of 410, combined jugular pressure 700 to 410, final pressure 35; cells, 6 lym-

phocytes, 7 mononuclears, 678 red blood cells; alcohol positive, ammonium splphate negative, sugar 78.6, chlorides 734.

That day, January 15, the patient died.

Discussion by Dr. Howell Randolph, Phoenix, Ariz.

The difficulties of diagnosis in this case do not depend upon an insufficiency of symptoms and clinical data, as is so often the situation. The history goes pretty clearly into the past year and a half of the patient's life, with observation records. Findings at different times point to the abdomen, the lungs, and the central nervous system, with intervals of complete remission of symptoms, making the task of correlating the various conditions rather complicated.

The presenting symptom is headache. A satirical humorist has observed that not every headache was an indication of brain tumor; however, this one had been continuous for 25 days and had been associated with other symptoms, such as attacks of dizziness, nausea, disturbances in taste sensation, transient loss of sight, with aberrations of vision, all of which tend to support the idea that there is some intracranial disease.

Before going further into the immediate findings, the records of the past history are interesting, if rather confusing. Undoubtedly there was some serious pathology in the lung two years before. These symptoms of vague pains in the chest, sputum sometimes blood-tinged, night sweats, together with the x-ray findings, might represent tuberculous or syphilitic infection, lung abscess, non-specific infection, or malignancy, with probabilities against tuberculosis.

This process underwent resolution, as shown by subsequent x-ray, which makes me think that it was not malignancy, and probably not tuberculosis, but either unresolved pneumonia, abscess, or syphilis. There was apparently complete remission of symptoms. A year later palpable masses in the flanks, with pain on the left side sufficient to bring the patient to the clinic, were found six months before admission, but no mention is made as to the extent of the trouble. Possibly essentially normal kidneys might have been palpated. The difficulty cleared up in short order and patient was apparently well until about three weeks before admission to the hospital. A description of the loss of sight would have been helpful. Did the patient lose consciousness during it? If so, simple fainting would account for it. Was sight lost more completely or suddenly in one eye, or, in both at the same time?

Nothing further was said about the condition of the kidneys on admission and the fidings in the lung were reported as essentially negative. The general physical examination showed nothing of significance if the facial and palatal asymmetry is to be considered congenital. The neurological data were of chief importance. Papilledema means definite marked increase in intracranial pressure, as corroborated later by spinal puncture. Left facial weakness and sluggish knee jerks were the only positive findings. Three days later, masses were palpated under both costal margins.

The death of this patient was undoubtedly caused by some intracranial lesion. It was located, probably, on the right side in the frontal or temporal regions. The headache was always right-sided. The right pupil was dilated. Tuberculoma is rare over 15 years of age. There is no evidence of middle ear or other focus of infection causing abscess. No fever except terminal. The Wassermann or Hinton is practically always positive in central nervous system syphilis, and there are none of the other findings which go with syphilitic lesions, except possibly gumma, which could be present with very little in the general findings to differentiate it from other lesions. However, with a negative blood and spinal fluid Hinton, it is very unlikely. The gold curve is not typ icfaolmoykdue cmfwyp curve is not typical of generalized syphilis or paresis. In paretics the first four or five tubes show complete color changes. The gold curve, being dependent upon globulin changes, would run parallel to the increase in total protein in this spinal fluid.

Between 1 and 2 per cent of autopsies are done on brain tumor cases. One half of all brain tumors are gliomata consisting of hyperplasia of the neurologial groundwork of the brain substance. The whorl endotheliomata are less common and less malignant. Fibromata originating in nerve sheaths occur and are more easily diagnosed than the previous two mentioned; usually are benign. They represent a large proportion of the successfully operated cases. Metastatic tumors represent over 10 per cent of the brain tumors.

Diagnosis: I am inclined toward the belief that this is a secondary tumor of the brain, metastasis being from a hypernephroma on the left side. With extensive metastasis there should have been more wasting and generalized effects. There is not any marked reduction in hemoglobin. Primary brain tumor seems a likely possibility. Death was probably from hemorrhage into the brain following decompression, or from depression of the vital centers by changes in intracranial pressure conditions.

Discussion by Dr. W. Warner Watkins, Phoenix

We have three very common presenting symptoms: headache, vertigo and vomiting. It has been very profitable to me to review these three symptoms and it may be interesting to the Club to consider some of the fundamental facts with regard to them, and from the foundation thus laid, we may be able to proceed to a diagnostic conclusion, which may be sensible though it may perhaps not be correct.

Headache. This first presenting symptom certainly gives us a field wide enough to stretch in and roomy enough to arrange any ideas we may have. If we first make a systematic arrangement of the usual causes of headache, we have some fixed points to which we may return later. A fairly convenient classification of headache is into three groups (French):

1. Those caused by organic ddiseases in the head itself, such as lesions of brain, intracranial vessels, meninges, skull or special sense organs.
2. Toxic states, which may be either (a) exogenous, such as foul air, poisonous gases, drugs, and so forth, (b) edogenous, such as from uremia, cholemin, gout, diabetes, gastro-intestinal toximia, infectious toxemias, and so forth.
3. Functional, as from abnormal blood pressure, congestive, anemic, mental strain, eye strain, migraine, epilepsy, psychoneuroses.

Vertigo. A definition of vertigo (Grasset) is that it "is the symptom of functional insufficiency of the automatic centers of equilibrium." Equilibrium is maintained by a nerve center in the cerebellum as a reflex from certain stimuli coming over afferent fibers, and the transmission of efferent impulses to the skeletal muscles. The centers of equilibrium receive three sets of fibers, (a) vestibular from the semicircular canals through the auditory nerves; (b) visual from the retina through the optic nerve; (c) muscle sense fibers from Clarke's columns and the posterior columns of the cord. The centers send out fibers to (a) the Rolandic area of the opposite side, which act on the motor centers, (b) the oculomotor nerves gov-

erning the ocular muscles, (c) the anterior horns of the spinal cord and through them to the voluntary muscles, (d) bulbar centers and through these to the glossopharyngeal and pneumogastric nerves.

Normal equilibrium is the result of harmony of labyrinthine, retinal and muscular impressions. The usual causes of pathologic vertigo may be grouped into five classes:

1. Central, the most usual causes of which are arteriosclerosis, cerebral tumor, cerebellar tumor, disseminated sclerosis, paresis, and disturbed circulation in the centers, which may be either hyperemic or anemia; in this latter class are included the vertigo of common syncope, of menopause, of chloroneurosis, of anemia, of hemorrhage or of heart disease.

2. Aural vertigo, such as Meniere's disease, infections of the labyrinth, wax in the ear, and so forth.

3. Neuropathic, such as from neurasthenia, psychoneuroses, epilepsy.

4. Toxic vertigo, as from alcohol, tobacco, carbon monoxide, drugs, from uremia, cholemia, acetonemia, and so forth.

5. Reflex, or the so-called gastric vertigo, from stimuli coming over the pneumogastric nerve.

Vomiting. This is a reflex action, the result of afferent stimuli coming to the vomiting center in the medulla, with consequent efferent stimuli over the motor pathways. The afferent stimuli come over one of four pathways, and the causes of vomiting may be grouped accordingly.

1. Abdominal—stimuli coming over the pneumogastric nerve; includes indigestion, appendicitis, gastric neuroses, ulcer or cancer, hepatic or renal colic, pregnancy, intestinal obstruction, tabetic crises, cardiac disease with decompensation, and so forth.

2. Pharyngeal, from stimuli over the glossopharyngeal nerve. Throat irritation is a common example; the pathologic causes of this stimuli are infrequent.

4. Nasal stimuli over the trigeminal nerve; bad odors being a common example; migraine is another example.

5. Cerebral stimuli, arising from inflammatory, toxic or psychic causes or intracranial pressure. This includes the vomiting of meningitis, cerebral tumor or abscess, of diabetes from acetonemia, from cholemia, from uremia, onset of acute infections, alcoholism.

When we study these many causes of three very common symptoms, the list seems formidable, but a critical analysis of the symptoms in tabular form (q.v.), will soon show that we can narrow the causes common to all three symptoms down to a much narrower group.

Without going through all the motions, the final result is that the diseases which stand out as the most likely causes of all three symptoms are: (1) Organic brain disease, (2) arteriosclerosis, (3) nephritis with uremia. Other conditions come momentarily into the picture, but soon fade out, when attempt is made to cover all the symptoms by them. Those symptoms are: headache, dizziness, nausea and vomiting, history of some intrathoracic pathology of uncertain character, chest findings nearly normal, bilateral choked discs, left facial muscular weakness, normal urine and blood except for leukocytosis. Spinal fluid with evidence of increased intracranial pressure, slight excess of protein, colloidal gold tending to paretic curve, otherwise normal; second examination showing evidence of some bleeding.

HEADACHE	VERTIGO	VOMITING
Organic	**Central**	**Cerebral**
Brain tumor	Tumor	Tumor or abscess
Meningitis	Arteriosclerosis	Meningitis
Arteriosclerosis	Dissem. sclerosis	Toxic (infections)
Periostitis	Paresis	Uremia
Sense organs	Circulatory	Cholemia
Sinusitis		Acetonemia
Toxic	**Toxic**	Alcoholism
Foul Air	Alcohol	Psychic
Gases	Tobacco	**Abdominal**
Drugs	Drugs	Indigestion
Uremia	Uremia	Appendicitis
Cholemia	Cholemia	Gastric neurosis
Diabetes	Acetonemia	Ulcer or cancer
Intestinal		Int. obstruction
Infections	**Aural**	Hepatic or renal colic
Functional	Meniere's dis.	Tabes
Blood pressure	Infections	Heart disease
Congestion	Wax	**Pharyngeal**
Anemia		Irritation
Mental strain	**Neuropathic**	**Nasal**
Eye Strain	Neurasthenia	Odors
Migraine	Psychoneurosis	Migraine
Epilepsy	Epilepsy	
Psychoneuroses		

This history of chest lesion, producing cough, stained sputum, and so forth, does not fit in with the evidences which finally brought the patient to the hospital. They seem to have finally disappeared, and we must suppose that they are not related to his terminal illness. The same thing applies to the abdominal symptoms which he developed after lying on the beach for three hours.

Is this nephritis with uremia? The headache of uremia is usually frontal, as this was; nephritis causes a headache which is usually worse in the morning. Headache, vomiting, drowsiness, force us to consider uremia, but with normal urine in a comparatively young man, and without blood chemistry, we cannot diagnose nephritis.

Is this arteriosclerosis? Arteriosclerosis of cerebral arteries may cause headache which cannot be distinguished from brain tumor. However, we do not usually expect vomiting from arteriosclerosis until we have some sort of toxemia resulting. The spinal fluid findings cannot be explained by arteriosclerosis, and since this diagnosis seems to be an imperfect fit, when we set down the symptoms, we must reject it.

A favorite fictional detective of mine has a saying, that when we are faced with a problem and have eliminated the various possibilities, that which remains, however improbable, must be correct.

Therefore, we come up to organic brain disease, with the idea that we will find there the correct solution.

When we consult the chart of our three symptoms, we find that the only lesion common to the three of them—under the headings Organic, Cerebral and Central—is brain tumor. Will this lesion cover all the symptoms? The three cardinal symptoms of brain tumor are headache, vomiting and optic neuritis. We have these. The headache of brain tumor is usually worse at night, waking the patient in the morning; it may be frontal or occipital. This corresponds to what this patient had. The vomiting of brain tumor usually follows a change in position, and is said to be projectile. We do not have a very clear description of the vomiting in this case, but since the vertigo and vomiting usually go together, and the vertigo is said to have come on change of position, we may assume that the vomiting did also. The optic edema is consistent for brain tumor, being bilateral, indicating generalized intracranial pressure.

The peculiar symptom of the sight of food nauseating him, and the bad taste in his mouth is probably the anosmia of cerebral tumor. Since taste is nine-tenths smell, a subjective sensation of a bad smell could easily be mistaken by the patient for a bad taste.

The vertigo, or dizziness, coming with change of motion is consistent with cerebral tumor.

The spinal findings are those of an increased intracranial pressure without blocking of the fluid pathways. The pressure is high, and the relief of pressure and relief of headache following removal of fluid is typical; chlorides are normal, sugar, normal, total protein somewhat in excess. Colloidal gold is paretic type but with the goal of a proved diagnosis in sight we will not be turned aside by that suggestion. The second spinal fluid examination would indicate that there had been some hemorrhage.

Now comes the question as to whether this brain lesion is a primary growth, an abscess, a metastatic growth, a hemorrhage, or what not. Were the symptoms in the thorax which we have ignored the evidences of a primary new growth which has metastasized to the brain? Are the abdominal nodules a part of this same metastasizing process? There is against this the evidence that the lung lesions improved or disappeared. However, we will include this as our second choice.

Diagnosis: Brain tumor, with terminal hemorrhage into or around the growth.

Discussion by Dr. Richard Cabot
(Taken from journal as above)

"Everything went black before his eyes for several minutes." That is fainting. Anyone who was looking on would have said what else he did. But this is often all the patient's description of fainting.

I cannot make anything of his improvement after two months on a farm.

That attack one or two years before admission might perfectly well have been an attack of tuberculosis and it might perfectly well be a bronchitis or something quite different from either, that I cannot guess.

The Out-Patient record is a good deal earlier than we know of him here.

The gain in weight is surprising in view of the other symptoms. We should expect him to lose and not gain.

The fullness over the suprasternal notch makes us think of aneurysm or mediastinal glands.

Dr. George W. Holmes: This is the earlier film, the one spoken of as showing rounded shadows of increased density. Here are the shadows, very small, quite indefinite. Perhaps more important is the larger shadow which occupies the greater part of the region between the heart and the diaphragm on the right side in the region of the cardiophrenic angle. The heart shadow is apparently somewhat enlarged. We have no actual measurements or films taken for the heart. It looks a little large and triangular. We have another film in which practically all those shadows have disappeared.

These shadows look like metastatic nodules in the lungs. I do not think they would disappear if that is what they were. That looks like a bronchophneumonic patch. It may have been an infarct. The smallest shadows I do not know how to explain.

DIFFERENTIAL DIAGNOSIS

Dr. Cabot: Certainly the natural thing to think of first is a neoplasm somewhere. A neoplasm is suggested by his anemia and by these masses in the region of the kidneys or perhaps of the spleen and liver, we cannot tell exactly which, on one occasion said to be nodular. These brain symptoms, as you remember perhaps Dr. Wolbach told us the other day, very often come as a result of metastases of tumors elsewhere. If I remember, the tumor which was metastasizing last week at the Brigham Hospital was in the lung. If that second film belongs to another patient we might still say it is in the lung here. But the patient improved so tremendously at the time that we shall have to say that film is correct, and we have no evidence of disease of the lung. I think meningitis may be excluded. In the beginning pulmonary symptoms, ending up with cerebral symptoms, and the lumbar puncture showing no cells,—all that is very hard to make consistent with any meningitis. He is young for cerebral hemorrhage. We have none of the usual concomitants (in the way of focal symptoms) for serious hemorrhage. We have blood in the second tap fluid. I do not know whether the tpping was done in such a way that they could certainly exclude blood from the operation of tapping itself. We have to think of something that could bleed, and that could be neoplasm well enough. I feel quite uncertain as to what organ is the seat of the primary focus. It might well be a hypernephroma, though the metastasis is not characteristic. As to the brain symptoms, I should say they were from neoplasm, that he had marked internal hydrocephalus and symptoms due to that hydrecephalus.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Central nervous system syphilis?

DR RICHARD C. CABOT'S DIAGNOSES

Neoplasm, perhaps hypernephroma, primary focus unknown, with metastasis to the brain.

Pathologic Discussion by Dr. Tracy B. Mallory
(From above journal, p. 177)

The autopsy showed some most unusual findings which are still puzzling us for a correct interpretation. A nodule of tumor five centimeters in diameter was found in the right frontal lobe. This was of unusual firmness and whiteness. Both adrenals were completely replaced by huge tumor masses which were in themselves almost wholly necrotic and filled with fluid hemorrhagic contents. The tumor in the left adrenal was about twice the size of that in the right and measured 25 by 15 by 15 centimeters. The tail of the pancreas was adherent to this mass.

At the time of the necropsy we jumped to the conclusion that we were dealing with a neuroblastoma, the commonest tumor of the adrenal medulla. This is frequently bilateral and typically metastasizes to the head. It is, however, extremely rare except in childhood.

The other gross findings of significance were a totally adherent pericardium and a nodule of metastic tumor in the right auricular wall.

Microscopic examination revealed our error and showed that we were dealing with two independent primarily malignant tumors. The tumor in the brain was a well differentiated, rather slowly growing, perfectly typical fibrosarcoma. This is a very rare primary site for a tumor of this character. The tumors of the adrenals, the tail of the pancreas and the heart were similar to each other in character but totally different from the brain lesion. They were extremely undifferentiated, very rapidly growing, largely necrotic. In some areas there was a recognizable alveolar arrangement and the cells could be identified as epithelial. This was particularly true of the tail of the pancreas, where the

appearances were entirely consistent with a primary carcinoma of that organ and the histologic findings did not at any point suggest any recognized type of primary adrenal tumor.

Dr. G. L.. Adamson: When the patient first came to the hospital a diagnosis of brain tumor was made; right frontal or temporal lobe. After we palpated the abdominal masses we had to think further, and the closest we came then was carcinomatosis. The diagnosis of central nervous system syphilis was made at death because of the colloidal gold reaction and before we had received the Wassermann reaction report.

ANATOMIC DIAGNOSES

Primary fibrosarcoma of the brain.

Primary carcinoma of the pancreas with metastases to both adrenals and the heart.

Adherent pericarditis.

BACTERIOPHAGE AND BACTERIOPHAGY

Following the announcement, in 1921, by d'Herelle, of his studies into and his conclusions concerning, the "bacteriophage," the Journal A. M. A. (July 9, 1921) summarized in an editorial the developments in this astounding chapter of medical discovery, as follows:

"In 1915, Twort, of London (Twort, F. W.: Lancet, Dec. 4, 1915), while seeking evidence regarding nonpathogenic ultramicroscopic organisms found some unexpected results. While culturing calf vaccine, colonies of micrococci were obtained, from which subcultures could be made. On some of these, he noticed certain colonies became transparent from disintegration of the cocci. When material from such a dissolved colony was brought in contact with an ordinary colony, the process of solution would spread into the latter and often completely kill all the cocci in it. If material from a dissolved colony was diluted and filtered through porcelain, the clear filtrate had the power to dissolve cocci. This coccus-destroying virus can be kept alive through many generations of transfers, and cannot be grown independently of the cocci.

These observations suggested at once the existence of ultrafilterable viruses pathogenic for bacteria.

In 1917, d'Herelle observed similar phenomena in dysentery bacilli cultures, his observations being published in a series of short articles. This virus can be cultivated through repeated generations, and gives the impression of being a true ultramicroscopic organism, capable of multiplication, specifically pathogenic for the particular bacillus (Shiga in this instance). This attractive hypothesis has not been accepted without protest.

If the organic world has been built up slowly in accordance with the theories of evolution, an ameba and a bacterium must be recognized as highly developed organisms in comparison with much more primitive forms which once existed, and probably still exist. It is quite possible that an ultramicroscopic virus belongs somewhere in this vast field of more lowly organisms than the bacterium. It may be living protoplasm, or an enzyme.

Kabeshima thinks the bacteriolytic agent is an enzyme (Compt. rend. Soc. de biol. 83: 471, 1920), because a minute quantity causes very rapid lysis of large quantities of bacteria, it remains potent at least four years at ordinary temperatures, it resists the action of alcohol, chloroform, toluene, ether and phenol; the active agent may be precipitated from solutions with acetone or alcohol without destruction, and may be dissolved and preserved in glycerine; it resists temperatures that destroy bacteria and is not thrown out of solution by centrifugation. He thinks it is a catalyst which activates the autolytic enzymes of the bacteria.

Twort believes the agent is something formed by the bacteria themselves, saying, "There is this against the idea of a separate form of life: if the white micrococcus is repeatedly plated out and a pure culture obtained, this may give a good white growth for months when subcultivated at intervals on fresh tubes; eventually, however, most pure srains show a transparent spot, and from this the transparent material can be obtained once again."

D'Herelle is convinced the active agent is a true living organism which normally exists in the bowel, normally acting on the colon bacillus, but which may be an important defense against dysentery. He says he has cultivated a single strain through more than a thousand generations without loss of bactericidal property. Gjorup also accepts the view that this is a true filterable, ultramicroscopic virus pathogenic for bacteria."

Since 1921 it has been estimated that more than seven hundred articles have appeared on this subject, the great majority of them in the European journals. D'Herelle's second book has recently appeared containing his Lane Lectures at Stanford University, in October, 1928, bringing his own views up to date. The development of the researches into this agent or phenomenon has been very interesting and it is thought worth while to list some of the most important articles in the order of their publication, for the sake of a clearer view of this development.

Gjorup (Hospitalstidende, Copenhagen, Apr. 6, 1921) reviewed the published material and agreed that bacteriophagy represents a filterable virus growing on bacteria, and that Kabeshima's suggestion of catalytic action is not tenable.

Machado and Costa Cruz (Brazil-Medico., Dec. 17, 1921) and Pico (Revista de la Asoc. Med. Argentina, Oct., 1922) claimed the phenomenon to be due to ferment action from bacterial products.

Bail (Wien. Klin. Wchnschr., May 19, 1921 and Sept. 15, 1921) described the different conditions under which the "virus germs" would develop in cultures of dysentery bacilli.

Otto and Munter (Deutsche Med. Wchnschr,. Dec. 29, 1921), discussed the significance of the four ways of demonstrating the d'Herelle phenomenon.

Bergstrand (Svenska Lak. Handliger, Mch. 31, 1922) described the characteristics acquired by staphylococci after having resisted the action of bacteriophagum and stated this new discovery would upset many ideas regarded as established, as to heredity and bacterial variation.

Piorkowski (Med. Klin., Berlin, Apr. 9, 1922) called attention to the frequent transformation of hemolytic streptococci into the

viridans in the tonsils. Also to the spontaneous development of bacteriophagum spots on cultures of streptococci and thinks they are due to ferment action.

In J. A. M. A., for Nov. 11, 1922, editorial comment summarized the most important recent communications, as follows:

"Twort, and a little later d'Herelle, observed that when Berkefeld filtrates of the cultures of certain bacteria obtained from stools and other bacteria are added to cultures of dysentery or other bacteria, a solution of the micro-organisms often occurs. This reaction is referred to as the d'Herelle phenomenon or bacteriophagy. The nature of the solvent agent or bacteriophage, that is, the substance in the filtrates which has the power of dissolving bacteria, has not been definitely established. D'Herelle believes it to be a filtrable virus, a parasite of the bacteria themselves, because, when a portion of the dissolved cultures is added to a new culture, it, in turn, may go into solution. Moreover, agar subcultures of the dissolved or partially dissolved cultures reveal, as a rule, colonies of a shaggy, moth-eaten appearance, which have been called "sensitive" colonies, because the bacteriophage or lysant is present on the medium in which the growth occurs, in solutions in which the colonies are washed, and in suspensions of the disintegrated or ground-up bacteria.

Bordet was the first to advocate that the dissolving principle originates from the bacteria themselves, which, when touched by this active substance, are capable of regenerating it, the factor responsible for the phenomenon being thus unceasingly reproduced, on the condition, however, that the bacteria are still living and provided with the nutritive substances necessary to their growth. Bail and Watanabe, who also believe the phenomenon to be one of autolysis, attempt to explain it by an analogy with cell division, as exemplified in spermatogenesis; bacteriophagy is likened to the autolysis of the old nucleus prior to its reconstruction into two nuclei. This comparison is suggested by their belief that the dissolving agent is produced by the generative mass of bacteria rather than by the vegetative mass. Davison has recently made a study of the properties of bacteriosolvents, and his results lead him to believe that they are probably enzymatic in nature."

Again in the issue of Dec. 9, 1922, the following comment on other investigations furthem epitomized the subject:

"In a recent issue, different opinions of the nature of the solvent agent in bacteriophagy were cited. D'Herelle, who contends that the substance is a filtrable virus, and Bordet and Ciuca, who are just as firm in their belief that it is enzymatic in nature, report the production of antiserums that neutralize its solvent action. Bordet and Ciuca, inoculating rabbits with Berkefeld filtrates of dissolved cultures of Bacillus coli, obtained a serum which, on being mixed with active bacteriophages, prevented the solution of cultures of B coli, which now developed in the normal way. The antiserum neutralized the inhibitory and dissolving properties of the bacteriophage. An antiserum with similar action was produced also by inoculating rabbits with suspensions of so-called sensitive or deformed colonies. Bordet and Ciuca believe that these results strengthen their opinion that the active substance is a product of the bacteria themselves. D'Herelle and Eliava made experiments with B. dysenteriae (Shiga) and obtained a serum which inhibited lysis of the bacilli only temporarily, and they report the return of lysant power after the effect of the antiserum had passed away, which they hold supports their view that the lytic agent is a living parasite. Now Gratia and Jaumain also report the production of antiserum which, greatly diluted, inhibited the action of the bacteriophage temporarily; when more concentrated, however, its action was permanent. This may explain the results of d'Herelle and Eliava, who worked with high dilutions, 1: 1,000,000, of their serum. The antiserums obtained by Gratia and Jaumain against the bacteriophage active only for staphylococcus and another active only for B. coli were strictly specific in their neutralizing actions, while Maisin, in similar experiments, found the neutralizing effect to be non-specific. The conflicting results, which are characteristic of much of the work on bacteriophagy, should stimulate further experiments to determine more decisively the nature of the phenomenon."

Nelson Barbosa (Brazil-Medico, June 22, 1923) reports on the use of staphylococcus bacteriophage in furuncles, abscesses and pyelitis. Da Costa Cruz, in same journal, reported on use of bacteriophage by mouth in twenty-four cases of bacillary dysentery, and in subsequent issues of this Journal (June 23, 1923 and Sept. 29, 1923) discussed work which attempted to establish the nature of the phenomenon, concluding that "this research seems to suggest the ferment or antibody nature of this transmissible microbic lysis."

McKinley (Arch. Int. Med., Dec., 1923) administered bacteriophage in a number of ways with some degree of success; it was given subcutaneously, by duodenal tube, into wounds, on dressings, by ureteral catheter, intranasally, intra-aurally and by ingestion in amounts from 1 c.c. to 50 c.c., without bad reactions.

Costa Cruz (Comp. Rend. de la Soc. de Biol., Oct. 7, 1924) affirms that bacteriophage administration is the best treatment in dysentery available at the present time. It is given by mouth twice a day, each dose being 2 c.c. During the past year 10,000 boxes of bacteriophage have been distributed to physicians in Brazil. It does not neutralize the toxin and the Shiga antiserum may be required in addition.

Hauduroy (Ann. de Med., Paris, Oct., 1924) claims that many infectious diseases, such as dysentery, typhoid fever, plague or cholera, may be prevented or cured by bacteriophage. No more than two or three subcutaneous injections of 3 or 4 c.c., at twenty-four hour intervals, should be given, as otherwise sensitization might occur. Four or five doses of 10 to 20 c.c. of the pure or diluted bacteriophage are taken by mouth.

Bail (Deutsch. Med. Wochenschr., Jan. 2, 1925) showed that the destruction of bacteria is only one of the actions of bacteriophages. Production of resistance to bacterio-

phage results in bacterial mutation and growth of atypical forms of bacteria.

Hauduroy (Presse Medicale, Paris, June 13, 1925) affirms that in typhoid fever bacteriophage unquestionably plays a part in the process of natural cure, and can only be explained by lytic action of bacteriophage on the typhoid bacilli. In serial blood cultures, bacteriophage became progressively stronger and more active as the numbers of bacilli diminished in the blood stream.

Hadley (J.A.M.A., Aug. 29, 1925) concluded from his own observations that transmissible bacterial autolysis is widespread in the bacterial world; and while d'Herelle's hypothesis offers the easiest and most obvious explanation, other possibilities should not be entirely excluded.

D'Herelle (Comp. Rend., July 17, 1925) reiterates anew that the bacteriophage is a living corpuscular element, independent of the lysed bacteria, and that it displays the properties of assimilation and adaptation. He disagrees with Carrel who regards the bacteriophage as analagous with Twort's agent.

Sickenga (Nederland. Maandschr. v. Geneesk., Amsterdam, vol. 13, 1925) in a comprehensive study of bacteriophage in children's pyelitis, found it constantly present in the urine of four out of twenty-six cases. The course of the disease did not seem to be modified by the presence or absence of the bacteriophage. None was ever found in urine or feces capable of producing complete lysis of the corresponding bacillus in bouillon culture.

Wolff (Nederlandsch Tijd. v. Gen., Amsterdam, Sept. 12, 1925) does not believe the lytic action of trypsin is similar to the action of bacteriophage. Trypsin loses its action when diluted to 1:200, while bacteriophage is still active at this stage. He believes with d'Herelle that the bacteriophage-like action of trypsin is due to bacteriophage in the trypsin.

D'Herelle (Presse Medicale, Paris, Oct. 21, 1925) wrote on "The Bacteriophage in the Treatment of Bubonic Plague" a summary of his report appearing in the J. A. M. A., Nov. 21, 1925, as follows:

"In the Presse medicale, d'Herelle recalls that, in 1920, he isolated in Indo-China various strains of bacteriophages virulent for B. pestis bubonicae. One of these specimens, isolated at Bac-Lieu from the excreta of a rat after an epidemic of plague, was highly virulent from the start. After establishing that subcutaneous injection of the filtered bacteriophage culture caused no disturbance in the guinea-pig and subsequently none in himself, d'Herelle was about to employ the bacteriophage in the treatment of plague when he was suddenly recalled from Indo-China. He has recently applied the treatment, with good success, in Egypt, where he is the director of the maritime sanitary council and of the quarantine board. His report contains his observations in four cases of bubonic plague that developed on a steamer anchored in the harbor of Alexandria and treated by him in the quarantine hospital.

The bacteriophage cultures used in the traetment were prepared thus: To 10 c.c. of a culure of B. pesis bubonicae (cultivated in bouillon for twenty-four hours) was added 3 c.c. of fresh bouillon inoculated with 0.02 c.c. of a previously prepared bacteriophage culture of high virulence for the plague bacillus. After being heated in an autoclave for twenty hours at a temperature of 37 C., bacteriophagia being then complete, the clear fluid was filtered and the patients were inoculated therewith directly in the buboes. In the three cases in which the culture was injected within twenty-four hours following the appearance of the bubo, the general condition of the patients improved rapidly within a few hours after the injection. In the fourth case, the intervention not having occurred until the third day, no definite improvement was noted until a few hours after the second injection. These injections caused no local or general reaction. In addition to the expected bacteriophagic action in vivo, injection of the bacteriophage exerts an antitoxic action.

In 1921, d'Herelle published his observations on five patients with bacillary dysentery treated by ingestion of a bacteriophage culture. He did not claim that the specific treatment of dysentery had been discovered but admitted that the facts were convincing to him personally. This treatment, since applied in tens of thousands of cases, has confirmed his belief.

D'Herelle now asserts that bacteriophage therapy should constitute the specific treatment for plague. From 1 to 2 c.c. of a very virulent bacteriophage culture should be injected as soon as possible. Since the treatment is harmless, it can be given as soon as the diagnosis becomes clinically probable, without waiting for bacteriologic verification. A single injection is indicated if the temperature falls steadily; otherwise, a second, or even a third, injection may be given. In the absence of buboes, in septicemic and pnuemonic cases, intravenous injections should be tried."

Bordet (Annales de l'Institut Pasteur, Paris, Sept., 1925) wrote on "The Bacteriophage Question" the summary of his article appearing in J. A. M. A. for Nov. 21, 1925, as follows:

"Bordet argues that the bacteriophage is not a living virus but a lytic substance produced by the bacteria themselves. His present conclusion is based on his five years' study of this transmissible autolysis of bacteria. He regards the autolysis as the result of the elaboratioin of a lytic substance and assumes that this is a normal physiologic function of micro-organisms. The growth of the bacteria proceeds unimpaired as long as the different lytic substances counterbalance each other or are not elaborated in excess. The lysis power and susceptibility to it vary in different bacteria. A bacterium unaffected by its own lytic principle, may be unable to resist the principle elaborated by another species. The receptivity of the bacterium and the local concentration of the lytic principle determine the number and extent of the areas of the transmissible autolysis. It is possible that analogous substances exert an influence on intercellular relations in higher organisms, contributing to normal functioning of organs, or inducing certain pathologic phenomena."

D'Herelle (Comp. Rend., Paris, Nov. 20, 1925) presented arguments to refute Bordet's theory of two potential "lysogenic properties" as an explanation of bacteriophagy. This article was abstracted in J. A. M. A. for Feb. 6, 1926, as follows:

"D'Herelle presents arguments to refute Bordet's recent theory of two potential 'lysogenic properties,' an active or spontaneous and a passive or induced autolysis, as the explanation of bacteriophagy. Bordet's statement was based on the fact that certain bacterial cultures, contaminated by the bacteriophage can be purified, while others cannot. D'Herelle does not believe that there is evidence for such a distinction. He experimented with bacterial cultures which, after having been exposed to the bacteriophage, had lost the lytic property owing to overgrowth of bacteria with acquired resistance. The culture, sown on agar, showed two kinds of colonies; those contaminated by the bacteriophage, and those not contaminated, the ultrapure. After serial transplanting (about ten) the number of the ultrapure colonies gradually decreased, and finally all the colonies were contaminated by the bacteriophage. Bordet's explanation of this phenomenon is that an active lysogenic property at first becomes passive, but reacquires the active property on serial transplanting. D'Herelle accepts this phenomenon as confirming the theory of the bacteriophage as a parasitic ultravirus, affecting bacteria. Under successive transplantations the acute infectious parasitic disease becomes chronic, a comparative balance being established between the virulence of the parasite and the resistance of the bacterium. Bordet and Ciuca ascribe serial bacteriophagy to an 'inherited nutritional defect' caused in the bacterium under the action of leukocyte products. D'Herelle inoculated fresh bacterial cultures with a filtrate containing the bacteriophage. Bacteriolysis developed. The entirely fluid medium was then filtered to exclude all bacteria, or it was heated to a temperature destroying all the bacteria, without killing the bacteriophage. The filtrate thus contained no bacteria that had been in contact with the bacteriophage, but it induced bacteriolysis when inoculated in other normal cultures. The experiment was repeated indefinitely, and always with the same results. It excludes, D'Herellel asserts, a 'hereditary nutritional defect' in the bacteria, since there was no heredity. There were no descendants, so there could be no heredity."

Alessandrini (Policlinico, Rome, Dec. 7, 1925) concluded from his experiments on the action of sodium chloride on the bacteriophage that it behaves like a living cell.

Zdansky (Wien, Arch. f. m., Med., Nov. 1, 1925) used concentrated suspensions of bacteriophages into the washed bladder in cystitis, but only six of twenty patients were cured, and only three of these were treated exclusively with bacteriophage. He thinks the rapid appearance of a bacteriophage resistant strain was one cause of failure.

Dalsace (Jour. d. Urol., Jan., 1926) treated infections of the urinary tract with bacteriophage from colon bacillus in seventeen cases and from staphyloccocci in eleven. From 2 to 3 c.c. of bacteriophage was injected subcutaneously, repeated every second day, never more than four times. During same period from 10 to 20 c.c. were given by mouth, with two or three instillations of from 10 to 20 c.c. into the bladder. Clinical recovery occurred in eight cases. When the lysis test was negative in vitro no effect was obtained.

Larkum (J. Bact., Sept., 1926) found bacteriophage present in 25 per cent of infected urines, and B. coli susceptible to the bacteriophage in the same proportion of specimens. The chronic cases had resistant bacteria and no bacteriophage. The bacteriophage was found in the acute cases. Four patients were treated with definite improvement.

The summaries presented above are taken from abstracts appearing in the Journal A. M. A. Since 1926, the Journal has not seen fit to abstract any of the articles on this subject appearing in foreign journals and since none of the American workers have presented their work until recently, there is a silence of about two years on this subject. Out of all this conflicting material two definite and conflicting ideas have developed. According to d'Herelle the principle which destroys bacteria exists in the form of corpuscles which behave in all respects like true parasites, the corpuscles being ultramicroscopic in size. On the other hand, Besredka and Bordet dispute the parasitic living nature of the bacteriophage and regard it as a chemical substance created by the bacteria. Schultz, of Stanford University, does not think this point is of material importance, although d'Herelle contends that it is fundamental to any proper understanding of the activity of bacteriophages. In his recent book, d'Herelle says: "The fact that bacteriophage is a living being is of prime importance to biology for, aside from indicating the living nature of all ultrafilterable viruses whose nature has likewise been contested, it shows further that being constituted not of a cell in the histological sense of this term, but of simple protoplasmic micella, may be endowed with all the characters of those other living beings; in other words, that the unit of living matter is not the cell, but the micella."

Rice (Jour. Ind. Med. Assn., March, 1928) made a preliminary report and in the same journal for December, 1928, a more detailed report, on 150 cases of staphylococcic and B. coli infections treated with bacteriophage filtrates. In his preliminary report he referred to some work under way by him, to compare Besredka's antivirus with bacteriophages. They are prepared in the same way, except that no bacteriophage is added to the bacterial culture in making the antivirus. This report of Rice's was published, but was

not available to the writer. In his book, d'Herelle does not mention Besredka nor make any comparison between bacteriophages and the so-called locally immunizing antivirus of Besredka. Rice's report covers boils, carbuncles, cellulitis, osteomyelitis, bed sores and ulcers, suppurating wounds, abscesses, septicemia and acne.

Schultz, of Stanford University, has written two very interesting articles. In Calif. and West. Med., for March, 1927, he gives an excellent summary, discussing the therapeutic applications in bacillary dysentery, typhoid and colon infections, staphylococcic infections, streptococcic infections and bubonic plague. He reiterates the caution, "it is indispensable that the bacteriophage be of maximum virulence for the bacterium upon which it is to act." He dwells at even greater length on this point in his second paper (Calif. & West. Med., July, 1929), emphasizing the two-edged character of the bacteriophage, and outlines the technic of determining the efficiency of the 'phage filtrate for the particular strain of bacteria we are combating. It is far more essential to determine that the 'phage filtrate proposed to be used is positively and highly lytic for the bacteria producing the infection, than it is to determine that diphtheria is present before using diphtheria antitoxin. In the latter event, no particular harm can be done, but a 'phage filtrate which is only weakly lytic for the bacteria present may enhance the virulence of those bacteria, instead of destroying them. The aim is to effect the complete destruction of the bacteria in a given area; if this is not done the infection will return and this time with 'phage organisms.

Rice (Am. Jour. Med. Sci., March, 1930) made a more extended report of his work giving details of 300 cases treated. He concludes that in 90 per cent of the cases they have excellent results by local application of bacteriophage filtrates in staphylococcic and B. coli infections. He found stock filtrates apparently as efficient as specially prepared ones,—provided they are virulent for the bacteria. He had not determined to his own satisfaction to which of five possible methods of operation the results were due: (1) whether the bacteriophage is a direct lytic agent for the bacteria, as claimed by d'Herelle; (2) whether it is an antivirus effect as claimed by Besredka; (3) whether it is the effect of an extremely available antigen in the shape of dissolved bacterial bodies, as suggested by Arnold and Weiss; (4) whether the bacteriophage brought about an avirulent phase in the infecting organisms as the result of microbic dissociation, as suggested by Hadley; (5) whether due to the possible stimulation of tissues by peptone broth, as claimed by Friedlander and Tooney. His series included the following interesting figures: 66 cases of boils and carbuncles with only five failures; 27 abscesses with excellent results in 24; five cases of staphylococcic cellulitis, all successful; staphylococcic purulent arthritis, four cases all cured; 17 appendiceal abscess cases, with excellent results in 14; three cases of peritonitis, two successful; 44 infected wounds, with success in 40; 21 cases of bed sores with excellent results in 15; 35 cases of acne with excellent results in 13, fair results in eight.

Larkum (Am. Jour. P.H., Jan., 1929) summarizes the whole situation very well. He notes that the conditions treated are numerous, but the enteric diseases, infections of the urinary tract and staphylococcic infections in general have received the most attention; that the conflicting results depend apparently on the nationality of the users; and about all that can be gained from the study of the literature is the impression that should the reader be so unfortunate as to contract any one of several diseases, his first request would be for a potent race of bacteriophage.

TREASURER'S REPORT

Arizona State Medical Association

To the Council and House of Delegates, Arizona State Medical Association:

Gentlemen:—

I present herewith Treasurer's report for the year ending April 22, 1931. (Books closed this date.)

GENERAL STATEMENT

Total receipts all sources:		
Balance General Fund April 19, 1930		$ 1,203.09
Dues 1930, 293 members at $12.50		3,662.50
Donation (Troth)		15.00
Refund, State Fair Exhibit, Public Health		22.50
Defense Fund, Balance in Savings Bank, April 19, 1930	$2,603.60	
Interest and coupons	515.25	
		3,118.85
United States Bonds		10,000.00
Total Receipts all sources		$18,021.96
Total Disbursements all sources		2,177.90
Total balance all funds		$15,844.04

ANALYSIS AND STATEMENT BY FUNDS

1. GENERAL FUND:

Receipts

Balance in Bank of Arizona April 19, 1930	$ 1,203.09	
293 members pro rated at $6.00 for Defense	1,758.00	
293 members prorated at $6.50 General Fund	1,904.50	
Donation (Troth)	15.00	
Refund, State Fair Exhibit	22.50	
Total Receipts	$ 4,903.09	

Disbursements, duly authorized, Paid from General Fund:

St. Louis Button Co., Changing date badges	6.35	
A. C. Taylor Printing Co., Annual Program	27.50	
A. C. Taylor Printing Co., Annual Program	4.50	
D. F. Harbridge, Secretary's Expense	60.00	
Maricopa County Med. Soc., State meeting	17.50	
Josephine F. Randolph, Stenog. State meeting	100.00	
A. C. Taylor Printing Co., Letter heads	18.50	
Martindell, Horne & Co., Treasurer's bond	30.00	
Southwestern Medicine, 250 members at $2.00	500.00	
Bank of Arizona, Safety Deposit Box	3.00	
R. J. Stroud, Health Exhibit State Fair	50.00	
Sloan, Holton, McKesson & Scott, Med. Defense	311.10	
D. F. Harbridge, Secretary's expense	60.00	
Sloan, Holton, McKesson & Scott, Med. Defense	5.00	
A. C. Taylor Printing Co., Annual cards	3.50	
D. F. Harbridge, Secretary's expense	60.00	
Sloan, Holton, McKesson & Scott, Med. Defense	245.86	
Arizona Industrial Congress, Membership dues	50.00	
Postal Telegraph Co., Telegrams to Washington	4.44	
Sloan, Holton, McKesson & Scott, Annual Retainer	100.00	
Sloan, Holton, McKesson & Scott, Basic Sc. Bill	100.00	
Sloan, Holton, McKesson & Scott, Med. Defense	276.75	
Drs. Gunter & Kennedy, Work Welfare Committee	52.00	
Powers & Larson, Stenog. Med. Defense	49.40	
H. S. McCluskey, Drafting letter to Governor	25.00	
Sloan, Holton, McKesson & Scott, Med. Defense	17.50	
April 22, 1931, Transferred to Defense Fund	961.83	3,139.73
April 22, 1931, Balance in Bank of Arizona		$ 1,763.36

2. DEFENSE FUND:

Receipts:

Balance in Savings Bank April 19, 1930	$ 2,603.60	
Interest June 30, 1931	33.29	
Dec. 31, 1930	56.96	
Coupons, U. S. Bonds, June, 1930	212.56	
Coupons, U. S. Bonds, Dec., 1930	212.44	
293 members prorated at $6.00 Medical Defense	1,758.00	
Due from General Fund 1930 (Coupons Dec., 1929)	212.44	
	$5,089.29	$ 5,089.29

Expenditures:

Bank of Arizona, Safety Deposit Box	3.00	
Sloan, Holton, McKesson & Scott	311.10	
Sloan, Holton, McKesson & Scott	5.00	
Sloan, Holton, McKesson & Scott	245.86	
Sloan, Holton, McKesson & Scott	100.00	
Sloan, Holton, McKesson & Scott	276.75	
Powers & Larson	49.40	
Sloan, Holton, McKesson & Scott	17.50	1,008.61
Balance in Yavapai County Savings Bank April 22, 1931		$ 4,080.68

CLEARING: Dues 293 members at $6.00	$ 1,758.00	
Dues from General Fund, (Coupons Dec., 1929)	212.44	
	$ 1,970.44	
Cost of Medical Defense for year	1,008.61	
Balance of Defense Fund, in General Fund, Transferred to Yavapai County Savings Bank April 22, 1931.	$ 961.83	

TOTAL AMOUNT FOR MEDICAL DEFENSE:		
Cash in Defense Funds	$ 4,080.68	
United States Bonds	10,000.00	
	$14,080.68	

EARNINGS OF DEFENSE FUND and Bonds since last report:		
Bonds, Coupons June 1930	$ 212.56	
Bonds, Coupons Dec. 1930	212.44	
Savings Account, Interest June	33.29	
Savings Account, Interest Dec.	56.96	
	$ 515.25	

UNPAID EXPENSES FOR 1931:	
To Southwestern Medicine— 293 members at $2.00	$ 586.00
To Secretary for office expense	120.00
Stenographer annual meeting	100.00

RECOMMENDATIONS:

1. In 1929-30 our total receipts for Medical Defense were only $272.37 more than our expenses. This year they are $1,264.74 more than our expenses. However, the lesson for 1931 is that we should continue our Medical Defense dues as last year, $6.00. The Association dues of $6.50 gave us a small balance. The total dues should be the same as last year, $12.50.

2. Our bonds, $10,000, are First Liberty Loan Converted bearing 4¼% interest, and may be called before the next annual meeting of our Association. I would suggest that the Council discuss this matter at this time.

Respectfully submitted,
C. E. YOUNT,
Treasurer.

We, the undersigned, a committee duly appointed by President James M. Greer, have audited the books of the Treasurer and inspected the bonds in his custody, and find them to be correct.

H. T. SOUTHWORTH.
J. H. ALLEN.

MARICOPA COUNTY MEDICAL SOCIETY INCORPORATES AND ADOPTS REVISED CONSTITUTION

Pursuant to action taken early in the year, Articles of Incorporation have been issued to the Maricopa County Medical Society (Arizona), and at the regular meeting of May 11, 1931, these Articles of Incorporation were adopted as the Constitution of the Society, and the revised By-Laws were adopted. The new Constitution and By-Laws are given below:

ARTICLES OF INCORPORATION of the MARICOPA COUNTY MEDICAL SOCIETY

KNOW ALL MEN BY THESE PRESENTS: That we, the undersigned, whose residence and post-office addresses are set opposite our respective names, under and by virtue of the provisions of Chapter XIV of the Revised Code of Arizona, 1928, and particularly under the provisions of Sections 602-611 inclusive thereof, having this day associated ourselves together for the purpose of forming a non-profit corporation, do hereby adopt the following Articles of Incorporation.

ARTICLE I.

The name of the corporation shall be
MARICOPA COUNTY MEDICAL SOCIETY
and its principal place of business shall be in the City of Phoenix, Arizona.

ARTICLE II.

This corporation shall have no capital stock and shall be a non-profit corporation as contemplated by the provisions of Section 602, Revised Code of Arizona, 1928. This corporation is formed for scientific research in all branches of science connected with the practice of medicne.

ARTICLE III.

Membership in this corporation shall be personal and not transferable. Each member shall be entitled to one vote to be cast by the member personally. Members shall be admitted, classified, continued in good standing, suspended or expelled in accordance with such reasonable rules and regulations as the corporation may adopt from time to time. A member may resign at any time by giving notice thereof in writing to the corporation or its secretary.

ARTICLE IV.

The purposes of the Society shall be:

(1) To promote the science and art of medicine;

(2) To develop a high type of ethical practice among its members;

(3) To conserve and promote the public health;

(4) To secure unity and harmony in the profession so as to make effective its opinions in all scientific, legislative, public health, material and social affairs, to the end that the profession may receive the respect and support from the community to which its honorable history and great achievements entitle it;

(5) For the better attainment of these objects, the Society aims to bring into one organization all reputable, ethical and competent physicians, possessing the qualifications herein specified, of Maricopa County, and to unite with other County Societies to form the Arizona State Medical Association, and through it with other State Associations to form and maintain the American Medical Association.

ARTICLE V.

Section 1. Every legally licensed practitioner of medicine or surgery in the county of Maricopa, State of Arizona who is of good moral and ethical standing, and who does not support or claim to practice sectarian medicine, who is a graduate of a reputable medical college, which at the time of his graduation maintained the standards equivalent to those of the Association of American Medical Colleges, shall be eligiible to membership, provided that the Society as a whole as represented by its membership in attendance at its regular meetings shall be the sole judge of the qualifications for membership of its members or applicants for membership, and that the vote of the membership of the Society at such meetings shall be conclusive upon the question of the right to membership.

Section 2. An applicant for membership, unless his application is accompanied by a transfer card issued by other component county or district societies, must, in addition to the above requirements, be a resident of the county of Maricopa, State of Arizona, and must have been such resident and actively engaged in the practice of medicine for a period of at least six months before he shall be eligible to membership.

Section 3. Applicants for membership possessing the qualifications enumerated in Section 1 of this Article and who present properly attested transfer cards within sixty days after the issuance of said card from other county medical units or the American Medical Association in the United States, may present their cards at any time after their location in Maricopa county, Arizona, no period of prior residence being required of such applicant for transfer, provided that such physician shall have otherwise complied with all the laws of the State of Arizona regarding medical practice, and the Articles of Incorporation of this Medical Society, and provided further, that this Society shall have the same exclusive right to pass upon such qualifications of such applicant as is provided in Section 1 of this Article.

ARTICLE VI.

Neither the members of this Society nor their private property shall be liable in any manner for any corporate debts, obligations, undertakings or for any damages incident to or arising out of any

(Continued on page 234)

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MALPRACTICE SUITS IN ARIZONA

A year ago, there were pending in the Courts of Arizona against members of the Association the following cases:

James Mammon vs. Drs. C. H. Laugharn, W. R. Quinn and E. J. Gungle, in the Superior Court of Greenlee County;

Jack Flanigan vs. Drs. A. C. Rounseville and P. A. Melick, in the Superior Court of Coconino County.

The case of Mammon vs. Dr. Laugharn et al. was tried beginning on December 20, 1930. The action was brought for damages in behalf of the parents for the wrongful death of a deceased boy child twelve years old. The complaint charged that the operation for appendicitis of the deceased child was performed without the consent of the parents and was the cause of death. It charged various acts of negligence on the part of the physicians, among them being that the surgical instruments and hands of the defendants were not properly sterilized; that no proper examination was made; that the operation was unnecessary, and other equally absurd claims. Th plaintiff called both Dr. Laugharn and Dr. Gungle to the stand as witnesses on cross-examination under the statute. It appeared from such examinations that the child had a severe case of appendicitis when Dr. Laugharn was first called; that an immediate operation was advised but that both the mother and father refused to permit it; that twenty-four hours elapsed and the case became much more acute and the condition advanced; that at that time Dr. Laugharn was called on the 'phone and told in substance that the operation might be performed; that the child was taken to the hospital and the operation performed; that pathological tests showed a streptococcic infection of the appendix; that the appendix was ruptured and the infection had spread to the abdominal cavity. The evidence also showed that not only did both the parents consent to the operation, but that the mother accompanied the child to the hospital and was present at the hospital at all times during the operation, but not in the operating room; that the child died in about forty-eight hours after the operation was performed; that had it been performed twenty-four hours earlier it probably would have been successful; that the infection had so far developed that it and not the operation was the cause of death. Upon the completion of the examination of the two doctors, it was clear that the plaintiff had no case and the plaintiff's attorney immediately moved for non-suit. As the statute of limitations has run against the bringing of a new action, the case is concluded by such non-suit.

In the case of Flanigan vs. Drs. Rounseville and Melick it was alleged that the defendant physicians in making a series of x-ray pictures had seared plaintiff externally and internally. That said burning had seared, injured and paralyzed plaintiff's bowels and liver area; that plaintiff as a result of such burns had suffered for a long period of time great pain. The complaint alleged without going into detail that the burns were caused by the careless and negligent operation of the x-ray apparatus. This case had been pending for a long period of time. Apparently plaintiff was unable to obtain any medical testimony in support

of his claim of carelessness and negligence on the part of the physicians. Somewhat less than a year ago, the case was dismissed with prejudice as against both physicians, without it having been tried.

Four cases have been filed during the past year against members of the Association and have come under the attention of the writer.

The first was the case of Charles A. Angle vs. Drs. E. D. Berends and R. C. Lieuallen. The complaint in this case charged that the two defendants were employed during the confinement of Mary L. Angle, deceased, to render such services as were proper and necessary during confinement and childbirth. The acts of negligence charged were that the defendants failed to discover the presence of a second unborn child and the attendant placenta. The complaint alleged that upon the arrival of Dr. Berends, one of the defendants, at the time of the delivery, there had been born one child which had been born dead, and that another child remained in the person of the deceased. The complaint further alleged that a few days thereafter and on June 23, 1929, Mary L. Angle died. That the cause of her death was the negligence of the defendants in failing to discover the presence of the unborn child and the attendant placenta. The case came to trial on January 31st of this year. In fairness to the defendants it must be said that on the trial there was an absolute want of anything approaching competent testimony as to the facts alleged in the complaint. The plaintiff accompanied by three witnesses, had had the body exhumed some fourteen months after the burial and an examination made. An attempt was made to elicit the testimony of three witnesses, none of whom were medical men or could qualify in any way as experts. No representative of the defendants was present at such exhumation; however, no witness that was present at the time had the temerity to testify that any evidence was discovered of any unborn child. Dr. Berends, one of the defendants, was placed on the witness stand on cross-examination by the plaintiff. He testified that he had been called to Mrs. Angle some twenty days prior to the confinement. That upon his first visit he discovered that she was suffering with diabetes in a very advanced stage. That he administered insulin and put her upon a strict diet but that the case was so far advanced that she did not respond to the treatment. That at the time of the confinement the patient was in a comatose condition; that the child had been delivered and showed evidence of having been dead for some days.

No doctor appeared on behalf of the plaintiff to testify against the defendants. John W. Ray, attorney for the plaintiff, made the statement to the Court that he had had a physician who had agreed to testify; that such physician on the evening prior to the trial notified him or the plaintiff that he would not testify for the reason that some Board, Body or person had notified him that if he did appear and testify against the defendants that his license to practice medicine would be revoked. This absurd and ridiculous statement on the part of the attorney for the plaintiff was thoroughly investigated. An ex parte hearing was had. The physician mentioned was brought into Court but he very promptly said that no such threats by any Board, Body or person had been made. The Court then announced that he would be compelled to grant our motion for a directed verdict upon the ground that there was no competent testimony of any character to show that the defendants or either of them were guilty of any act or omission of malpractice, or that the death of the deceased was caused by any act on the part of the defendants or either of them. Upon this announcement by the Court, the attorney for the plaintiff moved for a dismissal of the cause without prejudice to the bringing of another case; however, no case has been brought against the defendants or either of them in this jurisdiction. Dr. Lieuallen has left the state. We do not believe any further case will be brought.

The case of August Pavell vs. Dr. W. O. Sweek was filed July 14, 1930. This action is based upon an operation for appendicitis performed on the 7th day of June, 1928. It is alleged in the complaint that the defendant carelessly and negligently and in violation of the established medical practice inserted a surgical needle in the body of the plaintiff and failed to remove the same. It has been established by x-ray photographs that there is a surgical needle in the body of the plaintiff. The defendant, however, did not knowingly insert the same in the body. He has no knowledge whatever of how it came there.

The law relating to the responsibility of the physician in undertaking an operation and for removal of all objects has undergone a distinct change during the last few years. Formerly it was held that in performing an operation it was the duty of a surgeon to exercise reasonable care and skill; that the operation begins when the incision is made and ends when the opening has been closed

in the proper way after all the appliances necessary to a successful operation have been removed from the body, and that throughout the operation the law imposes on the surgeon the duty of exercising such care and skill; and that the removal of the sponges and pads is a part of the operation, and an operation cannot be said to be concluded until such removal takes place; that the surgeon cannot relieve himself from liability for injury to a patient by leaving a sponge in the wound after the operation by any custom or rule requiring the attendant to count the sponges used and removed, accompanied by the statement of the nurse that the sponges were all properly accounted for and his reliance on such statement. There are many of the older cases which adhere to the foregoing rule. Almost without exception, however, the modern cases hold that where the evidence is uncontradicted and clear and comes from competent and qualified witnesses that the surgeon adopted methods recognized as standard and approved as precautions to avoid the leaving of objects within the body, the plaintiff cannot recover. In other words where it is shown that it is the custom in the community that a nurse designated for that purpose who is not the employee of the physician assumes the responsibility for counting all surgical instruments, appliances and materials used in the operation and it is further shown that in the operation in question that custom was followed, no responsibility attaches to the physician unless it is shown by direct and positive evidence that he was guilty of some negligent act or omission in connection with the matter.

In the case of Pearl G. Champie vs. Dr. Alexander M. Tuthill the complaint alleges that on October 16, 1928, plaintiff in an automobile accident fractured her right leg a few inches above the knee; that the fracture was set by a physician and was in the process of knitting and healing when on November 22d of that year the defendant was employed to make an examination of the leg and of her physical condition. That on the 24th of November the defendant, without plaintiff's consent, caused plaintiff to be removed to the operating room and placed under an anesthetic, and in disregard of plaintiff's physical condition did rebreak or cause to be rebroken the leg of plaintiff at the place of the original fracture and reset the leg. It is alleged in the complaint that due to the rebreaking the leg became infected and an amputation became necessary and was performed. Damages were sought in the sum of $25,000.00. This would appear to be a case absolutely devoid of merit as the defendant never acted in any other capacity than as a consultant.

The last case to be brought was that of George Carlson vs. E. L. Hicks. This action seeks damages in the sum of $5,000.00 and alleges want of skill in connection with the treatment of a broken arm on the 28th day of December, 1930. The complaint was wholly devoid of any proper allegations showing any violation of good practice on the part of the defendant. A motion to have the complaint made more definite and certain in that regard was granted by the Court and ten days given to amend. No amendment was filed within the time and motion to dismiss has been made for failure to make such amendment within the time. It would appear that the plaintiff or his counsel are unable to point to any negligence whatever.

It gives me pleasure to reiterate what I have heretofore reported that so far as I know there has never been a malpractice case won in the courts of this state. Certainly none of those brought against members of the Association have been successful.

C. R. HOLTON.

THE ETHICS OF ADVERTISING

We frequently speak of advertising by doctors as if such a method of approaching the public were always unethical. However, advertising by doctors **can** be done ethically. Before we proceed to any intelligent discussion of this subject, we need to define clearly what we mean by advertising and what we mean by ethics as applied to such advertising. The Code of Ethics of the American Medical Association was formulated for the individual doctor, so we may greatly limit our discussion by confining it to personal advertising of a physician, or group of physicians.

By "advertising" in this sense we mean a public notice, prepared by or approved by, a doctor or group of doctors, designed to give personal information regarding the doctor or group, or their activities. Thus defined, advertising has three phases: (1) It must be public, which does not mean that it must be printed because it may be by word of mouth or over the radio. (2) It must be prepared by, or approved by, the people interested; this takes out of consideration news items secured by reporters and printed on their own initiative. For example, if a reporter learns that a medical

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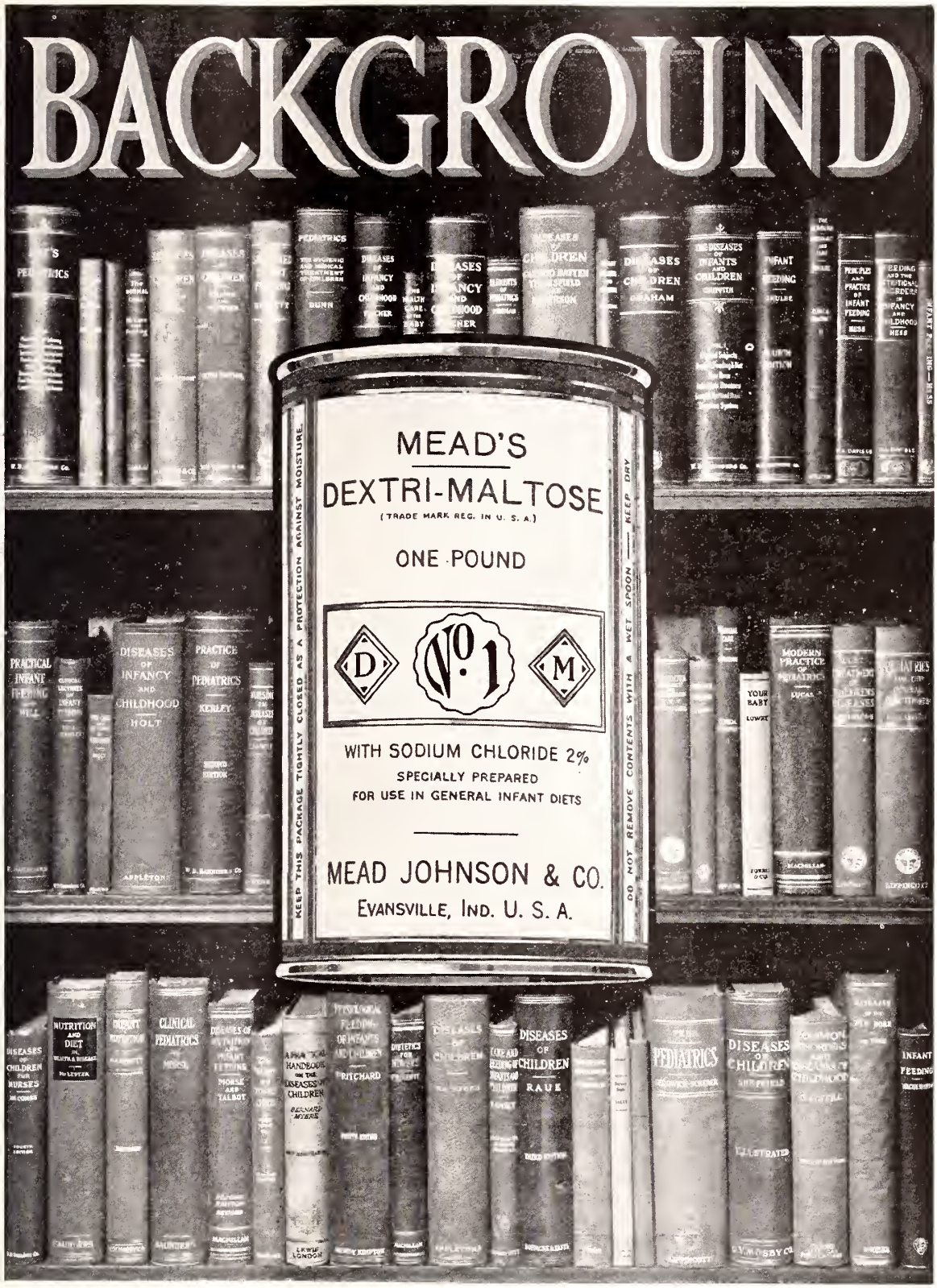
society meeting has been held and that Dr. W. has read a paper, and publishes this fact, that is not advertising, because it was done without the knowledge of the doctor mentioned in the news item; however, if Dr. W. goes to the newspaper and asks them to publish the same facts (and be sure to spell his name right), that will be personal advertising, and it may be entirely ethical advertising. (3) It must give information about the doctor or doctors or their activities. We can print a whole page in the newspaper, telling about the advantages of immunizing against diphtheria, and so long as we do not mention individuals, it is not personal advertising. But if, with Dr. X's consent, we should state that he, as school physician, will have direction of this work, it would be classed as personal advertising, as here defined, and it might be entirely ethical. In other words, a doctor may deliberately publish in newspapers or elsewhere, information regarding himself, and keep the presentation and data so advertised entirely within ethical limits.

This brings us to the definition of ethics as applied to personal medical advertising. The ethical limits of advertising by a doctor, or group of doctors, are perhaps more definitely prescribed than any other action or activity a doctor may engage in. These limits are clearly and specifically stated in the Code of Ethics of the American Medical Association, which this society in its constitution says shall govern the professional conduct of our members. Personal advertising, to remain ethical, must be kept within the bounds of a triangular limit, the equilateral sides of which can be drawn as follows (1): It must be **true.** The description of the activities of a physician or group must not, of course, transcend the bounds of truth, for it goes without saying that it is unethical for a doctor to make false claims about himself. (2) It must **not be self laudatory.** Public expressions must be confined to that somewhat vague field of good taste and courtesy which forbids self praise or the claiming of superiority over other physicians in the community, even when such claims may be true. In the days when John B. Murphy visited Phoenix, he would come quietly and courteously into the offices of local doctors, to consult with patients and advise the local surgeons about treatment. Never did he claim, nor permit to be published in local papers, that he could reconstruct a joint better than any local doctor. That was ethical conduct because it was common courtesy. Had there appeared, with his knowledge and consent, any newspaper item to the effect that "Dr. John B. Murphy, the leading surgeon of America, is now in Phoenix prepared to give service which no local doctor can give," that would have been unethical advertising, even though every word of it would, without question, have been true. (3) The third limiting border of the triangle of ethics in personal advertising is that it must not reflect upon, nor **do injury to,** the reputation or standing of other physicians of the community. Medical ethics forbids, in unequivocal terms, the claiming by any physician or group that they can render service superior to that obtainable elsewhere in the community.

Physicians, then, may ethically send out cards of announcement, giving their location, office hours, telephone numbers, specialties practiced, changes in location, new associations formed, or other information which will enable patients to find them or communicate with them. They may not ethically solicit patients, directly or indirectly, through the mail, through agents, through the newspapers, over the radio, or in any other manner. They cannot ethically sanction newspaper articles of a laudatory nature, which directly or indirectly are intended to lead the public into the belief that such physicians possess superior ability or can render superior service.

It is very desirable to understand what we shall regard as ethical and what as unethical in newspaper articles, radio talks, or public communications of any sort. We have had too much desultory talk about this without a defined policy. It is stated in most county medical society constitutions that their members are bound by the Code of Ethics of the American Medical Association; that violation of the Code of Ethics constitutes unprofessional conduct; that members guilty of unprofessional conduct are subject to discipline, varying all the way from censure to expulsion from membership. If there is misunderstanding about this, we would suggest that every medical society adopt a definite and unmistakable policy for future guidance. It is further suggested that this policy be to the effect that no doctor or group of doctors shall advertise to the public, in any manner whatsoever, a claim to give a service superior to that obtainable elsewhere in the community, or to advertise to render services for charges below those obtainable elsewhere in the community, or to seek to obtain patients by solicitation of any kind, other than the dignified and courteous announcements recognized by ethical requirements.



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ARIZONA'S FORTIETH IN NOGALES

The Fortieth Annual Meeting of the Arizona State Medical Association, which was held in Nogales, Ariz., May 6, 7 and 8, was a very successful one. The scientific program was a well balanced one, with excellent papers and very creditable attendance. A full report of it will appear in an early issue of this journal. The social features of the meeting were very enjoyable, showing evidence of careful planning, excellent judgment in details, and skillful management so as not to interfere with the scientfiic programs. There was a good attendance of ladies.

Dr. Clarence Gunter, of Globe, was elected president, a fitting recognition of his fine work on the Public Welfare Committee. The next annual meeting will be held in Miami, Ariz., the Gila County Medical Society to be the hosts.

THE MAYTAG RESEARCH LABORATORY FOR TUBERCULOSIS

We have received the Bulletin announcing the dedication of the Maytag Research Laboratory for Tuberculosis, which has been built in Albuquerque and which will be operated in conjunction with the Southwestern Presbyterian Sanatorium and the University of New Mexico. The laboratory is the gift of Mr. F. L. Maytag, of the Maytag Washing Machine Company and represents a donation of $150,000. The laboratory is a very substantial structure, completely modern and thorough in every detail. It has three large laboratories, a central library, and provision has been made for expansion as the work of the Laboratory progresses. The Director of the laboratory has not yet been selected. This is a notable addition to the scientific institutions of the west.

CHIROPRACTIC: WHY IT FLOURISHES IN ARIZONA AND FAILS IN DELAWARE

That species of quackery known as "chiropractic" flourishes like a green bay tree in Arizona. The reason for that is the lack of fundamental information among the people of the state and the failure to exercise any great measure of intelligence on the part of legislators. Several years ago the chiropractors succeeded in fooling the legislature into creating a separate licensing board for them, so that they could examine themselves and license themselves. In the hearing on that bill, the representatives of the medical profession agreed that the chiropractors might do whatever they pleased, so long as they might be forbidden to use the name "Doctor," or to hold themselves out, in any manner, as directly or remotely connected with the practice of medicine. In some manner, after this was agreed upon in the committee, the provision was dropped from the bill. In Arizona, today, it requires a well educated person to distinguish from the newspapers reference between "Dr. So-and-So" who is not a doctor but a chiropractor, and "Dr. X" who is a bona fide member of the medical profession. A recent news item in the Arizona Republic, of Phoenix, referred to an accident to a chiropractor with the heading "Physician Injured." It is that type of education by news articles which trains people into an inability to distinguish between an honorable profession and a brand of quackery from which the public should be protected.

As to Delaware, we quote an editorial from the A. M. A. Journal of April 4, 1931. The comparison will be obvious:

"Governor Buck of Delaware has returned to the legislature, without his approval, a bill to create a board of chiropractic examiners and to regulate the practice of chiropractic. His summarization of the reason for his veto is so clear and terse that it should be read by the legislators and governors of every state that is threatened or already afflicted with this cult. His statement follows:

> The purpose of the act, as I understand it, is to legalize the practice of chiropractic in this state. Practitioners of this cult are not recognized now. Do they profess to be doctors in the same sense of the term as is commonly understood to apply to men and women of the medical profession? Insofar as I am able to determine, there is not a recognized medical school in the country that includes in its curriculum a course in chiropractic. This fact in itself seems singularly significant.
>
> Even to the lay mind the idea that all disease of whatever character is due to spinal displacements of a mild sort, and that cures of such ailments as tuberculosis, smallpox, diphtheria, scarlet fever and others can be effected by manipulation and fingering of the spine is preposterous.

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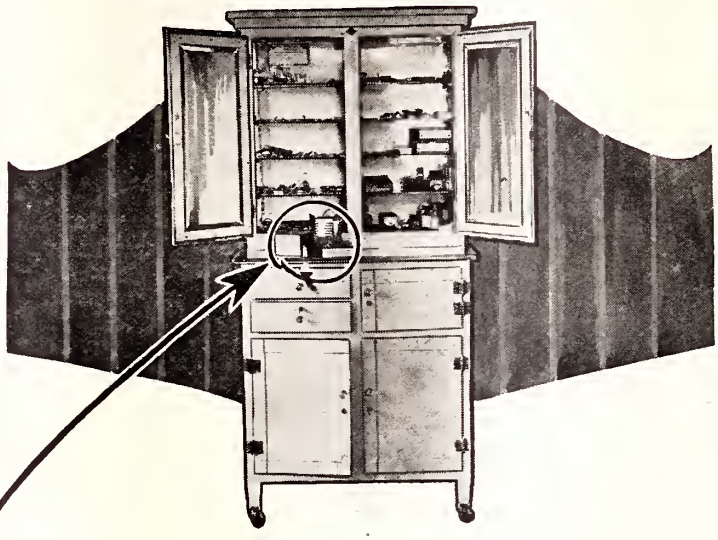

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Before returning this bill to you I have satisfied myself that the training and education a chiropractor, or drugless healer, needs to practice his art does not fit him properly to advisedly treat the sick, inasmuch as he is not qualified to diagnose ailments nor recognize communicable diseases and to take measures to control them. He is therefore an opponent to the department of health.

Wherefore, it seems to me it would be inconsistent for the legislature to appropriate, as it will do, money for the state board of health, which board is trying to eradicate communicable diseases, and at the same time legalize the practice of a cult which does not believe in the germ theory of a disease but does teach and believe that such diseases as scarlet fever, etc., are due to a distracted vertebra and the method to prevent and cure such disease is to see that everybody has a normal spine."

THE MEDICAL ASSOCIATION DE LA LAGUNA

Torreon, Coah., Mexico,
Sept. 13, 14 and 15.

Announcement has been received of the second annual meeting of the Medical Association de la Laguna, which is the northern branch of the Medical and Surgical Association of the Republic of Mexico. This meeting will be held at Torreon, state of Coahuila, and the Association, through its President, Dr. Salvador De Lara, wishes to issue through this journal an invitation to the medical men of the Southwest a cordial invitation to attend this meeting. His invitation reads as follows:

"To The Medical and Surgical Association of the Southwest:

"The Medical Association de la Laguna, a branch of the Medical and Surgical Association of the Re public, will celebrate in this city of Torreon during the 13th, 14th and 15th days of September next the Second Medical Convention of the North and we have the honor of extending our most cordial invitation to your Association to take an active part in our Convention.

"We appreciate that this is a brilliant opportunity to have a better understanding between the doctors of the Southwest of the United States and the Northwest Mexican doctors, in which case we beg of you to accept our invitation.

"Please be kind enough as to indicate how many delegates will come and the kind of work which each one of them will present (General Medicine, General Surgery, Gastro-Enterology, Gynecology and Pediatrics) to make them figure in our program."

AMERICAN MEDICAL GOLFING ASSOCIATION TOURNAMENT

Philadelphia, June 8, 1931.

The Seventeenth Annual Tournament of the American Medical Golfing Association will be held in Philadelphia, Monday, June 8th, at the Aronimink Golf Club instead of the Huntingdon Valley Country Club, as announced in the Brochure of the Association which was recently mailed to members. The Aronimink Colf Club is modern, the course is in splendid condition and is interesting and sporty. The Local Committee is doing everything possible to make the tournament a great success. The Philadelphia men composing the Local Committee on Arrangements are Dr. John W. Croskey, Chairman; Dr. Willis F. Manges, Dr. Fred H. Leavitt, Dr. Frank J. Kelly, and Dr. Damon B. Pfeiffer.

Membership in the American Medical Golfing Association is open to any male Fellow of the American Medical Asscoiation in good standing. It is hoped that many of the medical golfers throughout this State will join the Association this year and take part in the Philadelphia tournament. There will be many attractive and valuable prizes awarded at the Annual Dinner, to be held on the evening of the day of the tournament at the Club House. For any additional information, communicate with any member of the Local Committee, or with the Executive Office, 1124 Maccabees Bldg., Detroit, Michigan.

MARICOPA COUNTY MEDICAL SOCIETY INCORPORATES AND ADOPTS REVISED CONSTITUTION

(Continued from page 225)

of the corporate actions or conduct of the corporation's affairs.

ARTICLE VII.

Any physician who desires to become a member of the Society must make application in writing on a regular blank form provided by the Society for that purpose. The application must be accompanied by the annual dues and must be endorsed and approved by two members of the Society. Such application shall have printed thereon as a part of said application, Articles V and VI of these Articles of Incorporation, and immediately above the signature of the applicant there shall be printed in legible type thereon the following words:

> "The undersigned has read this application and submits the same subject to the provisions of the Articles of Incorporation of the Maricopa County Medical Society, and particularly Articles V and VI thereof, a copy of which is included in and made a part of this application, and hereby agrees in case of his election that his membership in the Maricopa County Medical Society shall be in strict compliance with all the By-Laws, rules and regulations thereof."

Such application shall be referred to the Board of Censors of the Society and the members of such Board shall make such investigations and reports as they deem necessary and proper for the welfare of the Society, and they shall cause written notification of such application, and the time of the election to be held thereon, to be sent to each member of the Society at his last known address, such notices to be sent by U. S. mail at least ten days before the date of such meeting. It shall require a two-thirds vote to admit the applicant. The vote shall be by secret ballot.

ARTICLE VIII

The Maricopa County Medical Society shall adopt By-Laws for its government, which By-Laws may be amended in the following manner: By giving written notice to each member of the Society of the nature of the proposed amendment at least ten days in advance of the meeting of the Society to which the question of such amendment shall be submitted. It shall require a two-thirds vote of the members of the Society attending such meeting to effectuate such amendment.

ARTICLE IX.

The fees of admission and for annual dues shall

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The progress of Science in our modern day, is amazingly rapid . . . and the physician, surgeon, nurse, and hospital best able to cope with the problems of treatment and operation, are those who co-ordinate their own skill and experience with efficient up-to-the-minute professional equipment . . . surgical supplies and X-Ray apparatus, such as are produced by the World's finest makers and distributed by reliable supply houses such as R. L. Scherer Co.

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THE ROBINSON CLINIC

The value of the special school for problem children has been proven; both the individual and the group profit by this system. There are many children attending the regular schools, who should not be sent there. This group may be divided into four classes—the feebleminded, the organic cases, the problem child and the psychotic.

These children realize they are different from other children, and suffer from inferiority feelings. They attempt to satisfy the lowered ego by attracting attention to themselves, by any possible means. Because of these actions, they become exaggerated school problems—even minor criminals. The only solution to their problems is to send them to schools where they are not exposed to cruel childish taunts, the other children being like themselves, and so do not develop feelings of inferiority.

The Robinson School was founded with this need in view and offers ideal conditions. The school gives a full curricula, with an expert teacher, constant medical and nursing care, and is located on the outskirts of the city, where sunshine and fresh air are constant aids in physical rehabilitation. The rates are reasonable.

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Associate Medical Director

G. WILSE ROBINSON, M.D.
Medical Director
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8100 INDEPENDENCE ROAD
KANSAS CITY, MO.

Drug and Alcohol Addiction
Paul A. Johnson, M.D.
Internist

be fixed by the By-Laws of the Society and shall be paid into the Treasury of the Society.

ARTICLE X.

The canons of ethics adopted by the American Medical Association are hereby adopted by this Society as the standard of ethical conduct of its members. Violation of such canons of ethics shall be ground for expulsion of any member of the Society but such grounds shall not be exclusive. The Society may in its By-Laws provide for other grounds of expulsion.

ARTICLE XI.

The existence of this corporation shall begin at the time of the issuance of its certificate by the Arizona Corporation Commission, and shall extend for a period of twenty-five years thereafter, provided that the same may be extended beyond such period in the manner provided by law.

ARTICLE XII.

The corporation at no time may subject itself to any indebtedness or liability direct or contingent.

ARTICLE XIII.

The affairs of the Society shall be conducted by a Board of not less than three nor more than twenty-five Directors, who shall be elected by the members of the Society in the manner prescribed by its By-Laws, provided that the Society may elect such other officers and executives as may be prescribed by its By-Laws.

ARTICLE XIV.

It is recognized by these Articles that the corporation formed hereby is the incorporation of an unincorporated body heretofore known as the Maricopa County Medical Society, and every member in good standing in the Maricopa County Medical Society at the time of the incorporation hereof, shall, ipso facto, be entitled to a membership in this corporation without the making of application therefor as prescribed herein for new members.

The officers of the Maricopa County Medical Society as it heretofore existed shall continue as the officers of the corporation until the annual election of officers shall occur as provided by the By-Laws of the corporation.

ARTICLE XV.

The names, residences and postoffice addresses of the incorporators are as follows:

W. Warner Watkins, Goodrich Building, Phoenix,, Arizona.

J. M. Greer, Security Building, Phoenix, Arizona.

Victor Randolph, Goodrich Building, Phoenix, Arizona.

That an election as provided by Section 602 of the Revised Code of Arizona, 1928, was held for the purpose of electing Directors on the 9th day of March, 1931, and at said election the incorporators above named were duly and regularly elected as Directors and incorporators.

BY-LAWS

CHAPTER I.—OFFICERS.

The officers of this Society shall consist of a President, a Vice-President, a Secretary-Treasurer, Delegates, Board of Censors and Board of Directors. These officers shall be elected at the annual meeting to serve for one year, except as noted below. Delegates shall be elected in accordance with the constitution and by-laws of the Arizona State Medical Association. The Board of Censors shall consist of three members, one member to be elected each year to serve for three years. The Board of Directors shall consist of nine members, the president, vice-president and secretary-treasurer being three members; the remaining six shall be elected in the following manner: At the first regular meeting following the adoption of these by-laws two directors shall be elected to serve the remainder of the current year; two to serve the remainder of this year and one additional year, and two to serve the remainder of this year and two additional years; at the next annual meeting and at each annual meeting thereafter two directors shall be elected to serve for three years.

Section 2. The officers of the Society and corporation shall be elected at the last meeting in December of each year, which shall be known as the annual meeting. A nominating committee of three shall be appointed by the president to present nominees for all the offices to be filled; they will report at the annual meeting, following which opportunity shall be given for nominations from the floor. Elections shall be by ballot and a majority of the votes cast shall be necessary for election.

Section 3. The President shall preside at meetings of the Society, and perform such other duties as custom and parliamentary usage may require. He shall serve as chairman of the Board of Directors of the corporation. He shall be the real head of the profession in the county during the year, and it shall be his pride and ambition to leave it in better condition as regards both scientific attainments and harmony than at the beginning of his term of office.

Section 4. The Vice-President shall assist the President in the performance of his duties, shall preside in his absence, and in the event of the death, resignation or removal from the county of the President, shall succeed to the presidency. He shall serve as member of the Board of Directors of the corporation, and shall be vice-chairman of said Board.

Section 5. The Secretary shall record the minutes of the meetings and receive and care for all records and papers belonging to the Society, including its charter. He shall notify each member of the Society as to the time and place of each meeting, and, whenever possible, give the program for the meeting. He shall receive and hold subject to the order of the Board of Directors, all the funds of the Society, paying out the same only on the order of the Board of Directors, signed by the chairman of the Board. He shall make and keep a list of the members of this Society in good standing, noting of each his correct name, address, place and date of graduation, and the date of the certificate entitling him to practice medicine in this state; and in a separate list he shall note the same facts in regard to each legally qualified physician in this county not a member of this Society. It shall be his duty to send a copy of such lists, on blank forms furnished him for that purpose, to the Secretary of the state association at such time as may be designated by the state association. In making such lists he shall endeavor to account for each physician who has moved into or out of the county during the year, stating, when possible, both his present and past address. At the same time, and with his report of such lists of members and physicians, he shall transmit to the state association remittance for the annual dues of the Society.

Section 6. The Delegates shall attend and faithfully represent the members of this Society and the profession of this county in the House of Delegates of the state association, and shall make a report of the proceedings of that body to this Society at the earliest opportunity.

Section 7. Board of Censors. This Board shall examine and report on the qualification of appli-

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cants for membership, subjecting each applicant to such examination as it may deem necessary. It shall investigate charges preferred against a member, and report its conclusions and recommendations to the Society. In case of the absence of a member of the Board, the President may appoint some member to fill the vacancy. The senior member of the Board in point of service shall be Chairman of the Board.

Section 8. Board of Directors. The Board of Directors of the corporation shall include the President, Vice-President and Secretary-Treasurer of the Society who shall be, respectively, chairman, vice-chairman and secretary-treasurer of the Board of Directors of the corporation, together with six directors elected by the members of the corporation as set forth in Section 1 of this chapter. The duties of the Board of Directors shall be to administer the financial and business affairs of the organization, and all matters concerned with the expenditure of the funds of the society, or concerned with the business affairs of the corporation or society shall be referred to them. They shall be responsible to the Society for their actions and shall make reports to the incorporated body whenever requested by said body to do so.

CHAPTER II.—COMMITTEES.

Section 1. There shall be a standing Committee on Program and Scientific Work, and a Committee on Public Welfare, and such special committees as may from time to time be deemed necessary.

Section 2. The Committee on Program and Scientific Work shall consist of the President, Vice-President, Secretary-Treasurer and such other members as the President may appoint. It shall be its duty to promote the scientific and social functions of the Society by arranging attractive programs for each meeting and by urging each member to take part in the scientific work. It shall stimulate fraternalism and good feeling among the members in every way possible.

Section 3. The Committee on Public Welfare shall consist of three members who shall be appointed annually by the President. It shall be its duty to enforce and support the sanitary and medical laws of the state in this county, to cooperate with the Committee on Public Policy and Legislation of the state association in all matters pertaining to legislation, and to prosecute quacks and medical pretenders in this county. The chairman of this committee shall serve as the representative of this Society on the Auxiliary Committee on Public Welfare of the Arizona State Medical Association.

CHAPTER III.—RIGHTS OF MEMBERS.

Section 1. All members shall be equally privileged to attend all meetings and take part in all proceedings, and shall be eligible to any office or honor with the gift of the Society so long as they conform to this constitution and by-laws, including the payment of dues. A member who is under sentence of suspension or expulsion shall not be permitted to take part in any of the proceedings, or be eligible to any office until relieved of such disability. And, provided further, that none of the privileges of membership shall be extended to any person not a member of this Society except on a majority vote of the Society in regular meeting.

Section 2. A member in good standing who is free from all indebtedness to this Society, and against whom no charges are pending, wishing to withdraw, shall be granted a transfer card. This card shall state the date the member associated himself with this Society, the date of issuance of the card, and shall be signed by the President and Secretary. It shall be accompanied by a copy of the application presented at the time the member joined the Society, for information to the Society to which the member desires to attach himself.

Section 3. A member who is guilty of a criminal offense or of gross misconduct as a citizen, or grossly unethical conduct as a physician, or who violates any of the provisions of the Articles of Incorporation or the By-Laws of the Society, shall be liable to censure, suspension or expulsion. Charges against a member must be made in writing and be delivered to the Secretary, who shall immediately furnish a copy to the accused and to the Chairman of the Board of Censors. The Board of Censors shall investigate the charges on their merits, but no action shall be taken by the Board within ten days of the presentation of the charges to the accused, nor before giving the accused and accusers ample opportunity to be heard. The board shall report (1) that the charges are not sustained; or (2) that the charges are sustained and that the accused be (a) censured; (b) suspended for a definite time, or (c) expelled. Censure or suspension shall require a two-thirds vote of the members present and voting, and a three-fourths vote of those present and voting shall be required to expel a member. No action shall be taken by the Society in such case until at least six weeks have elapsed since the filing of the charges. A member suspended for a definite time shall be reinstated at the expiration of the time.

Section 4. Kindly efforts in the interest of peace, conciliation or reformation, so far as possible and expedient, shall precede the filing of formal charges affecting the character or standing of a member, and the accused shall have opportunity to be heard in his own defense in all trials and proceedings of this nature.

Section 5. Members expelled from this Society for any cause shall be eligible for membership after one year from date of expulsion and on the same terms and in like manner as original applicants.

CHAPTER IV.—POWERS AND DUTIES.

Section 1. This Society shall have general direction of the affairs of the medical profession of the county, and its influence shall be constantly exerted to better the scientific, material and social condition of every physician within its jurisdiction. Systematic efforts shall be made by each member, and by the Society as a whole, to increase the membership until it embraces every reputable and ethical physician in the county.

Section 2. Regular business and scientific meetings of the Society shall be held on the second and fourth Monday evenings of each month. Fifteen members shall constitute a quorum for the transaction of the business of the Society. Special meetings may be called by the President and shall be called on a written request of ten members. A call for a special meeting shall state the object of such meeting, at which no business except that stated in the call shall be transacted.

The officers and committee on program shall profit by experience and by example of other similar societies, and strive to arrange for the most attractive and successful proceedings for each meeting. Crisp papers and discussions and reports of cases shall be arranged for and encouraged, and tedious and profitless proceedings shall be avoided as far as practicable.

Section 3. Agreements and schedules of fees shall not be made by this Society, but at least one meeting during each year shall be set apart for a discussion of the business and ethical affairs of the profession of the county, with the view of adopting the best methods for the guidance of all. In all

proper ways the public shall be taught that business methods and prompt collections are essential to the equipment of the modern physician and surgeon, and that it suffers even more than the profession when this is not recognized.

Section 4. This Society shall endeavor to educate its members to the belief that the physician should be a leader in his community, in character, in learning, in dignified and manly bearing, and in courteous and open treatment of his brother physisians, to the end that the profession may occupy that place in its own and the public estimation to which it is entitled.

CHAPTER V.—FUNDS AND EXPENSES.

Section 1. The funds of the corporation shall be raised by annual dues in the Society, by special assessments and by voluntary contributions. The annual dues in the Society shall be twenty dollars per year, which includes the annual assessment of the state association. These dues shall not be prorated, except that a member transferring from another county society and who has paid dues in such society for the current year may be required to pay only the annual assessment of the state association for that year. Dues are payable on January 1 of each year, and any member who fails to pay his annual dues by April 1 shall be held as suspended without action on the part of the Society. A member suspended for non-payment of dues shall be restored to full membership on payment of all indebtedness. Members more than one year in arrears shall be dropped from the roll of members.

Section 2. The funds of the Society shall be in charge of the Board of Directors, and may be expended by such Board for such purposes as will promote the welfare of the Society and of the profession. Special assessments may be recommended by the Board of Directors, but shall become binding on the membership only when adopted by majority vote of members present at any regular meeting.

CHAPTER VI.—ORDER OF BUSINESS.

The order of business shall be as follows:

1. Call to order by the President.
2. Reading of the minutes of last meeting.
3. Clinical cases.
4. Papers and discussions.
5. Unfinished business.
6. Miscellaneous business.
7. Announcements.
8. Adjournment.

CHAPTER VII.—RULES OF ORDER.

The deliberations of this Society shall be governed by parliamentary usage as contained in Roberts' Rules of Order, unless otherwise determined by vote.

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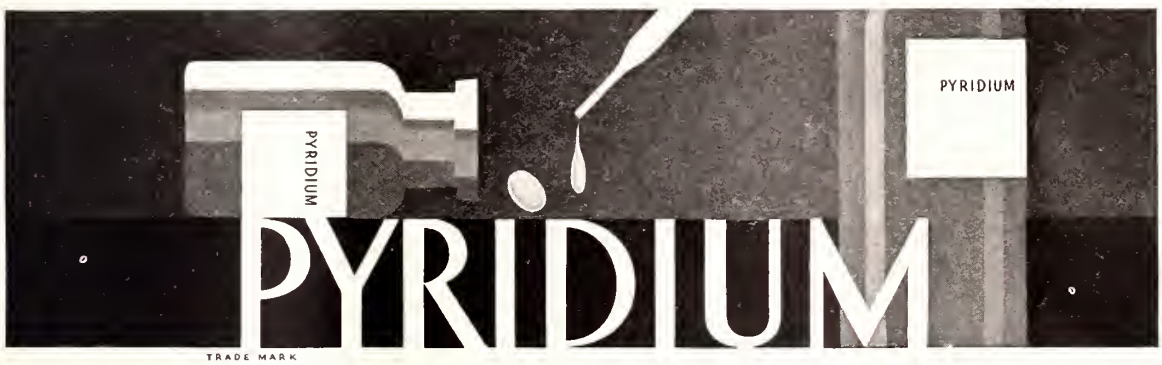

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CASE OF INTUSSUSCEPTION

(Case Report and Discussions at Staff Meeting of St. Joseph's Hospital held on March 9, 1931.)

CASE REPORT

Robert T. Franklin, M.D.

Case 21814. Mexican boy, age two, admitted to hospital on Feb. 9, 1931.

This case was brought to Dr. Leff's office on the afternoon of Feb. 9, with the following history:

Illness began suddenly 5 days ago with vomiting, bloody diarrhea and pain in abdomen. Vomiting was of the propulsive type, and fecal in character. Was given castor oil on second day of illness without doctor's orders. Condition did not improve and patient was taken to Dr. Leff where I saw him in consultation. Dr. Leff's diagnosis of intussusception was confirmed. Immediate operation was advised.

The past history was negative with exception of double lobar pneumonia in last July and again in November.

Examination showed a well developed, well nourished boy of two years. Upon inspection the patient's general appearance was that of a very sick baby, with anxious expression and dry skin. Temperature 101.2; pulse 118, poor quality; Respiration 28; chest negative; abdomen a large sausage like mass was felt in left abdomen extending from costal margin to brim of pelvis. Abdomen distended and rigid. Examination otherwise negative.

Operation: Left rectus supra-umbilical incision made under ether anesthesia, exposing distended transverse colon which had been pulled to left. Examination showed the intussuscipiens to be transverse and the ascending colon, cecum and appendix as the intussusceptum. This was carefully disinvaginated manually. Serosa appeared to be in good condition as were the vessels. The appendix being enlarged and hyperemic was removed and stump invaginated. Abdomen closed without drainage. Next day the abdomen was quite distended, pulse 140; respiration 40; temperature 100. Examination of chest disclosed many areas of bronchial breathing, rales, etc., characteristic of lobular pneumonia. Patient was put on digitalis and mustard plasters to chest. Caffein-sodio-benzoate. Became gradually worse and died at 8:30 p.m.

AUTOPSY

Body of a well developed, well nourished male child of two years showing evidence of an incision in the right lower quadrant; operative wound. The thorax and abdomen were opened. Left lung showed marked passive hyperemia of the lower lobe with areas of consolidation in the stage of red hepatization. Similar changes were noted in the right lower lobe. The heart was not enlarged and no gross pathology was found. The liver and kidneys were normal. Spleen showed hyperemia and was slightly enlarged and friable. The cecum showed areas of dark brownish discoloration evidently due to stasis and beginning necrosis. The stump of the appendix was inverted, showed no evidence of leakage. There were small areas of the ileum which were dark in color and showed marked distention. On incision of the cecum and ascending colon the mucous membrane was found injected with a bloody deposit over the surface and multiple areas of beginning necrosis. This extended as far as the first portion of the transverse colon. Stomach was negative.

Bronchopneumonia, bilateral.

Areas of hemorrhage and necrosis in proximal colon and cecum (due to intussusception which had been reduced).

Probably paralytic ileus involving the distal portion of the ileum.

DISCUSSION

Thomas W. Woodman, M.D.

In the particular case under discussion, which was promptly diagnosed and properly handled, there is certainly one feature at least that makes the prognosis more grave than even in the average similar case and that is the fact that this baby had had pneumonia three times within a period of one year and consequently was in marked danger of getting pneumonia again following anesthesia even if the operation was successful.

As has been stated, intussusception most commonly occurs in babies under two years old and more commonly in breast-fed infants. Irritation of the mucous membrane is etiologically important for we often find that intussusception follows a diarrhea. The irritation of the mucous membrane and the resultant diarrhea probably causes increased peristalsis which results in the invagination of the intestine. Castor oil, because of the irregular peristalsis produced, is probably the cause of many of the cases of intussusception.

It has been demonstrated that dysfunction in nervous control, at least experimentally, may be a factor in the production of intussusception. It has been produced in animals by stimulating a segment of the intestine with a faradic current which results in the invagination of the stimulated segment into the relaxed distal portion. This dysfunction in nervous control assists in the explanation of why the majority of the intussusceptions occur in the ileocecal region, for at this point the nervous control changes from a dual supply consisting of sympathetic and parasympathetic supply to the small intestine, to a single nerve supply from the sympathetic system to the large bowel. It is suggested that during rapid peristalsis, which may extend the whole length of the small intestine in a few seconds, the active movement in the small intestine may not be continued by the cecal segment, which is supplied by the sympathetics alone, and intussusception results.

Early diagnosis is of the utmost importance for gangrene of the invaginated portion of the bowel occurs rapidly resulting from the cutting off of blood supply. The onset of the pain is very rapid and the infant will draw up his knees, turn pale, scream because of pain, and vomit. The passage of blood and mucus in the stool is of extreme diagnostic importance but this sign may appear early, (within an hour) or last 12 or 14 hours, or it may not occur at all. A sausage shaped tumor can be palpated in the large percentages of cases. It should always be remembered that acute enterocolitis, which is frequently confused with intussusception, may result in intussusception and we should always be on guard when treating this condition.

The treatment is very definitely surgical and operation should be done as early as possible for gangrene of the invaginated portion of the bowel occurs early. Unless gangrene is present attempt should be made to reduce the invagination by exerting pressure on the apex of the intussusceptum and gentle traction on the gut proximal to the obstruction. Placing a warm towel about the intussusception and even pressure along the bowel will frequently aid in reducing the hemorrhage and swelling so that reduction can be accomplished. Cutting the contracted portion is sometimes neces-

sary, with subsequent closure of the gut. If gangrene has occurred the bowel must be resected.

DR. F. C. JORDAN said he thought the length of time this child had been sick was significant. Five days for any kind of intussusception makes the outlook practically hopeless, no matter how good the general condition may seem to be.

DR. R. J. STROUD recalled the motion picture of the intestines and how they illustrated the ease with which intussusception may occur. It is remarkable that we do not have this condition oftener; the sympathetic nervous system must coordinate the intestinal muscular movements in a wonderful manner. Dr. Franklin made some remarks about using ether anesthesia because the patient could not afford gas. This is a good illustration of the need for a county hospital and just another reason why the medical profession should back the legislation looking toward this devoutly to be desired goal.

DR. O. H. BROWN recalled a case of intussusception in an adult caused by a malignant tumor.

DR. FRANKLIN, in closing said that intestinal polyps is mentioned as a cause of intussusceptino. The amount of intestine involved in this case was interesting; the ascending colon was invaginated into the transverse and the entire mass was in the left side.

NEW LIGHT ON RICKETS

In the Journal of the American Medical Association, April 4th, 1931, page 100, appears an imposing list of scientific papers on vitamin D, the basis for which is Mead's Viosterol in Oil, 250 D.

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On page 12 of the J. A. M. A. for April 11th, 1931, under the title "Viosterol is not a substitute for cod liver oil except in rickets," is a very interesting statement of the comparative values of viosterol, cod liver oil and 10 D cod liver oil which clarifies the respective advantages of each of these antiricketic agents.

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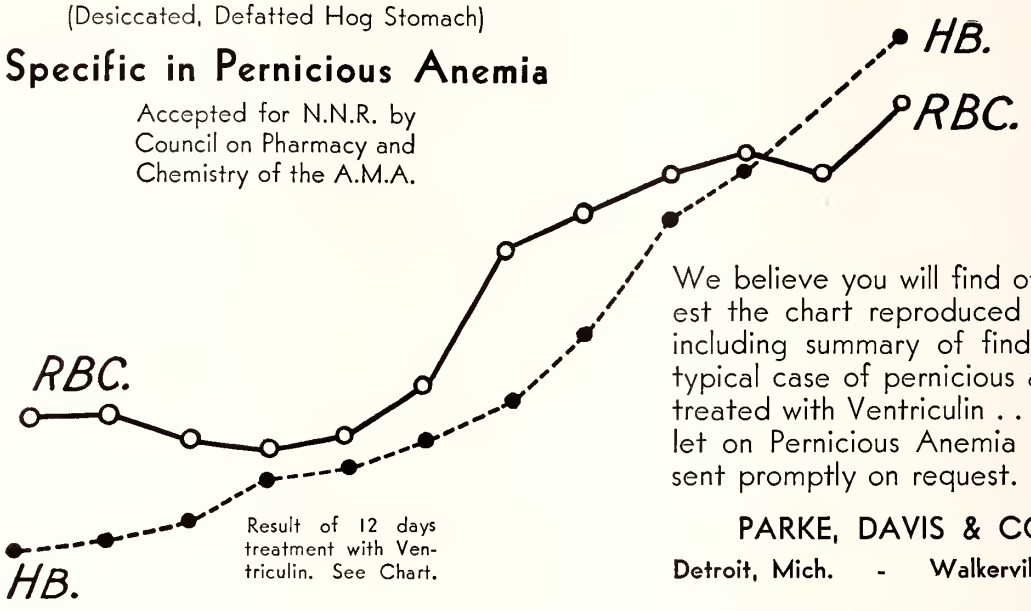

Result of 12 days treatment with Ventriculin. See Chart.

We believe you will find of interest the chart reproduced below, including summary of findings in typical case of pernicious anemia treated with Ventriculin . . . Booklet on Pernicious Anemia will be sent promptly on request.

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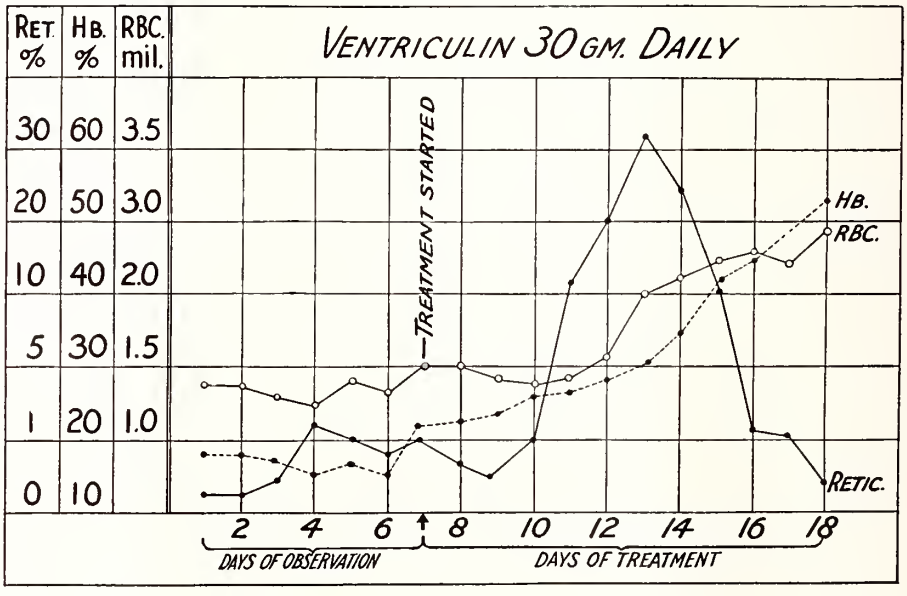

DIAGNOSIS. Pernicious anemia.

INITIAL BLOOD COUNT: Red blood cells 1.5 million per cu. mm.; Hemoglobin (Newcomer) 21 per cent; Reticulocytes 1.0 per cent.

TREATMENT. Ventriculin 30 Gm. daily.

PHASE OF REMISSION. On sixth day of treatment: RBC 2.0 million; Hemoglobin (Newcomer) 30 per cent; Reticulocytes 32.0 per cent (calculated rise for 1.5 million red blood cells at beginning of treatment = 22.3 per cent, exceeding expected rise by 9.7 per cent).

PROGRESS REPORT. On the twelfth day after Ventriculin was begun the following blood count was recorded: RBC 2.9 million; Hemoglobin 52 per cent; Reticulocytes 0.4 per cent. (Expected weekly increase = 500,000 red blood cells per cu. mm. Actual increase in this patient = 700,000 red blood cells per cu. mm.).

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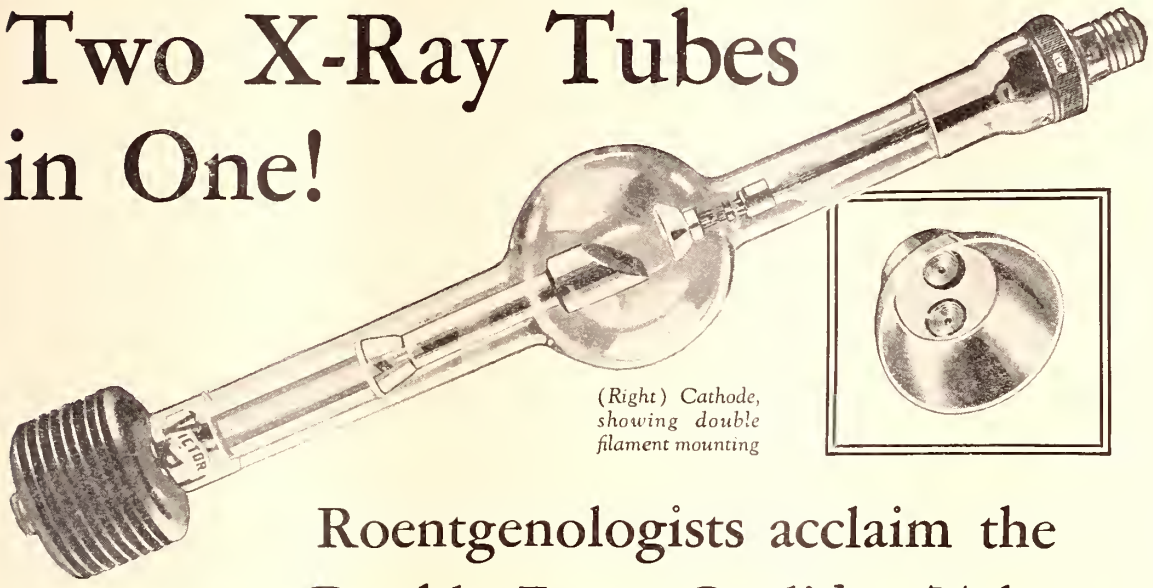

(Right) Cathode, showing double filament mounting

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	85	20	4½
	100	10	45
	100	20	2½
Large Focal Spot	100	50	9½
	85	50	12½
	100	75	3
	100	100	½
	75	100	3

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(REGISTERED U. S. PATENT OFFICE)

Volume XV June, 1931 No. 6

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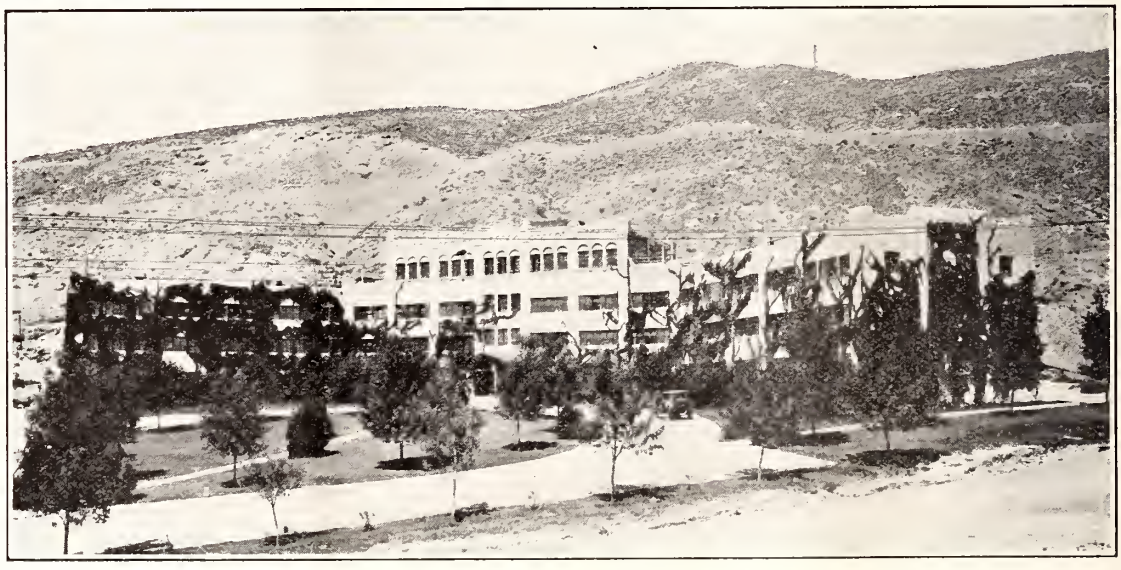

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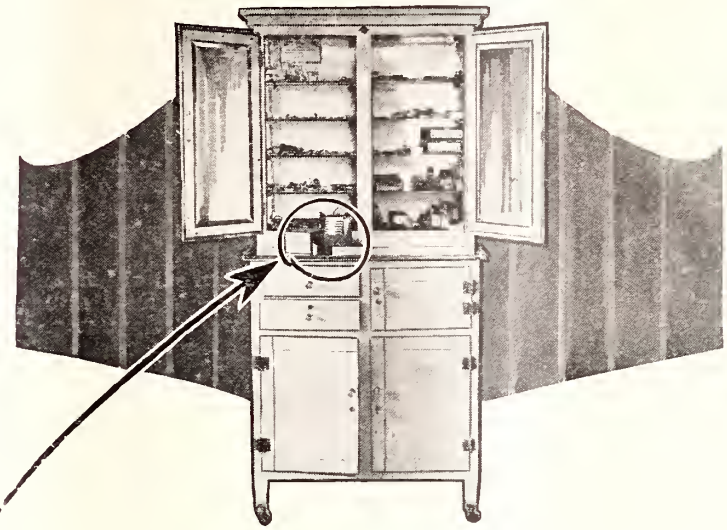

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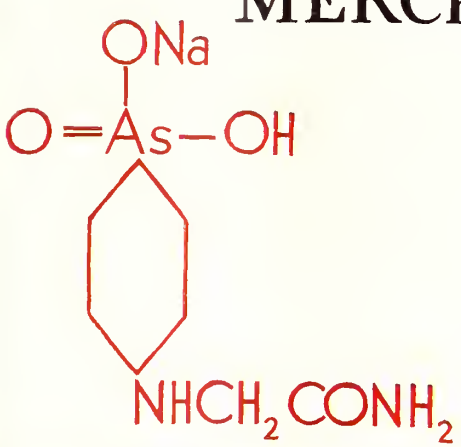

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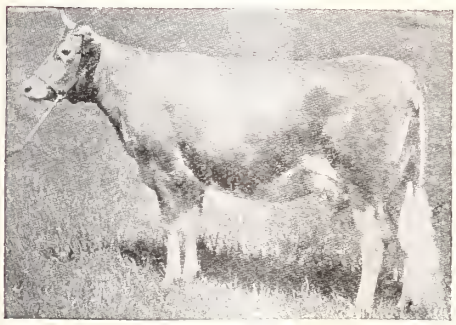

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HEAD INJURIES

C. A. THOMAS, M.D.,
Tucson, Arizona.

(Read before the Fortieth Annual Meeting of the Arizona State Medical Association, held at Nogales, May 7-9, 1931.)

The title of this paper without some explanation is all too comprehensive, but it was chosen deliberately in order to contrast it with skull fractures. Skull fractures, of course, are types of head injuries; but skull fractures, unless depressed or compounded, are of minor importance when viewed from the standpoint of skeletal damage and may, at times, be life-saving when the type is such as to prevent intracranial pressure of a not too seriously damaged brain. For many hundreds of years head injuries or, more properly speaking, skull fractures, have been the subject of many acrimonious discussions by the leading men of their times, some taking the attitude that all skull fractures should be operated, regardless of type; other men, equally prominent and capable, taking the other horn of the dilemma and advocating conservative or non-operative treatment for all cases—both frequently losing sight of the anatomical, pathological, and physiological factors involved.

No anatomical description of the head will be undertaken; neither will I attempt to classify types of skull fractures, but rather will attempt to summarize the present rather generally accepted methods (which tend toward conservatism) now employed which seem rational and are showing a lowered mortality rate in cases of severe head injuries, with brain damage and shock. These cases are the most serious problems confronting us and tax the ingenuity of the most skilled surgeons, and can be successfully treated only by taking into consideration the pathological condition present and the physiological disturbances in each individual case. Cases of simple concussion and lineal fractures without shock are not included in the scope of this paper.

Many years ago, after repeated surgical attempts at relief for this type of case, usually with disastrous results, I commenced a rather intensive study of this subject, reading many texts, all the available current literature, visiting many neurosurgical clinics and neurosurgeons, but always finding them at variance with each other on many of the apparently essential points of treatment. So much so, in fact, that in my efforts to reconcile their viewpoints, I was reminded of one of Goldsmith's verses: "They who travel in search of wisdom walk only in circles and finally, after all their labors, return to their own pristine ignorance."

In these days of high speed and tension, both industrial and civil, and especially since the advent of the automobile, head injuries have been an increasing factor in the work of every surgeon, especilaly the industrial surgeon. Hospitals report as high as 300 per cent increase in this type of case in the past decade. Not only is there a very great increase in numbers, but the type of injury is much more severe than formerly. Instead of having a majority of head injuries of the milder type—concussion and simple fracture—we now have a far greater percentage of the more severe type, composed of every variety of fracture, with every degree of brain damage and all of them complicated by edema, which frequently proves to be the factor which determines the outcome of the case.

Until the beginning of the twentieth century, the rather generally accepted method

of treatment was surgical, which may account for some of the enormous mortality, and only in the last few years has there been established any considerable uniformity of opinion along more conservative lines, with due regard for the physiological disturbances present—immediate shock and ultimate edema. Recent statistics, based on large numbers of cases by many authors, will give sanction to a division of these cases into three groups: (1) Those whose injury is so severe that they die in the first 8 or 10 hours, comprising 35 per cent; (2) those who will get well if not mistreated, probably 40 per cent; (3) the borderline cases, who may die but who can be greatly helped and, possibly, by the proper treatment, be placed in the second group, making up the balance, or 25 per cent. I do not mean that no effort at treatment of group 1 should be made—relief of shock should be attempted. Class 2 should be as diligently treated as class 3, to hasten recovery and prevent avoidable sequelae.

Since this paper is not intended as a dissertation on the surgical technic or operative procedures in these cases, the indications for surgery will be mentioned and no further reference made to them. No surgery should ever be attempted on any of the 35 per cent of the most serious injuries who are unable to react from shock.

It is my serious conviction that very few surgeons are sufficiently well informed as to the time to operate and are skillful enough to operate these cases without producing sufficient additional truma to be "the straw that breaks the camel's back." In other words, I am thoroughly convinced that if there were fewer operations more patients would get well. So strongly do I feel on this subject that I am constrained, even in the face of being considered academic, to quote two surgical adages: "Never operate a moribund patient," and, "No surgical emergency except hemorrhage is so great that preparation of the patient can be dispensed with."

Extradural hemorrhage, while much talked of and of much importance when present, really is very rare and represents only about 2 or 3 per cent of the 65 per cent of cases where treatment offers any hope of recovery. It is frequently a complication in the 35 per cent where treatment is of no avail (being found in 20 per cent of postmortems), but in this class of cases the symptoms are masked beyond recognition. This condition can usually be recognized in class 2 or 3 by the following three symptoms: (1) Period of lucidity followed by increasing coma; (2) gradual developing hemiplegia involving face, arm, and leg, in order mentioned; (3) convulsions, beginning in face, and extending to arm and leg in same order. This condiiton constitutes the one and only indication for emergency operation, and should be diligently sought for, because, if detected early, it is readily amenable to surgical treatment.

Depressed fracture is present in a larger per cent of cases but should never be treated as an emergency; operation may be performed on any subsequent day when condition of patient will permit. Elevate depressed portion back in place, without removal of fragments, if possible. Lacerations of scalp should be treated as soon as possible after patient has reacted from shock, with debridement and suture. Decompression, like many other procedures in head injuries, has been, and still is being, much abused by some surgeons, with a frightful mortality. This procedure is really only indicated in those of the borderline cases (20 per cent) whose cerebral edema cannot be controlled by dehydration treatment and which present the following symptoms: Increasing coma, increasing intraspinal pressure, more marked restlessness, pulse pressure equaling or exceeding pulse rate. When these symptoms arise together they mean stage 4, which frequently lasts only one hour. At most, a very few hours elapse before the case passes into stage 5 of the chart and the patient is moribund.

The management of a severe case of head injury, then, resolves itself into the treatment of its several stages: (1) shock; (2) stage of recovery from shock and before beginning of medullary edema; (3) medullary compression, beginning edema; (4) definite medullary edema (decompression indicated); (5) fixed medullary edema, moribund.

A patient with serious head injury should be immediately transported to hospital, as carefully and as quickly as possible, and placed under the care of a competent nurse who will make and record half-hour observations of pulse, respiration, treatment, and blood pressure. Particular attention should be paid to character of pulse and respiration, also, to pulse pressure and its relation to pulse rate. Patient should be treated for shock, which is usually present and is manifest by the following symptoms: Greater or less degree of unconsciousness; subnormal temperature; cold clammy skin; rapid, feeble pulse; low blood pressure; slow, shallow respiration. These symptoms may be due to head or other injury, but are not head injury per se; consequently, no effort

should be expended on the head at this stage except for the control of hemorrhage and to place a sterile dressing if there are lacerations. If wound is compounded into nose or ears, use simple cleansing and sterile dressings.

The foregoing symptoms should be combated by removing all damp and dirty clothing. Apply dry, warm clothing, cover in warm blankets to conserve body temperature and apply additional heat by use of hot water bottles, or, better still, by application of diathermy through hepatic region. Blood transfusion is indicated and if donor is available should be given. If blood transfusion cannot be given, then 50 or 100 c.c. of 50 per cent glucose should be given intravenously and oxygen subcutaneously. Probably no other drugs should be given; certainly the fleeting stimulants such as adrenalin, strychnine, pituitrin, should not be given. Their stimulating effect is short-lived and is followed by a depression which leaves the patient in a worse condition. Atropin and morphine, the sheet anchors in shock from other causes, should not be used because they both interfere with pupillary reaction, which is a valuable prognostic sign, and morphine also interferes with state of consciousness and has effect of further depressing respiratory centers. Do not give saline infusion—its chloride content tends to fix the fluids in cells and materially interferes with dehydration treatment to be given in the second stage or following shock.

Probably the most pernicious habit now being indulged in, in management of these cases, is taking x-rays while patient is still in shock. This amount of trauma and exposure may be sufficient to turn the tide against the patient. There should be no unnecessary consultation or examination. After the first 4 to 6 hours of treatment, or as soon as the patient has reacted from shock and has entered the second stage, careful physical and neurological examination should be made, not with the idea of diagnosis, but to determine if complicating injuries are present, also, to establish a reasonable prognosis. This can usually be done by examination of eyes and ears. Of utmost value from a prognostic standpoint are the eyes and their reactions. Ochsner states that 78 per cent of serious head injuries show eye signs. Of those with both pupils dilated and fixed, 95 per cent die; of those with widely dilated pupils which react to light, 30 per cent die; of those with unilateral dilated or contracted fixed pupils, 6 per cent die; of those with unequal dilated or contracted pupils, 44 per cent die; of those with contracted and fixed pupils, 70 per cent die. In other words, fixation of pupils represents the most serious single sign. Eyeground changes come on too late to be of much value as either diagnostic or prognostic signs. Ear examination is made with the idea of determining if there is blood or spinal fluid escaping. Either of these, if coming from middle ear, establishes the diagnosis of basal fracture and makes the prognosis more grave on account of possibility of infection. If both ears are involved the prognosis is doubly grave. Of course, severe injuries of other portions of the body make the prognosis even more grave. X-rays of head should include stereo of two different sides and stereo of front and back of head, especially if depressed fracture is suspected.

After preliminary examination, being extremely careful to rule out extradural hemorrhage, the routine dehydration treatment is begun and consists of the following: (1) 50 to 100 c.c. of 50 per cent glucose, intravenously; (2) follow in 2 hours by 1½ ounce magnesium sulphate by mouth, if able to take—if not, by rectum—these measures to be repeated every six or eight hours as indicated, (physiological action); (3) the much-discussed spinal tap is here advocated as the third and essential part of the treatment, and should be repeated at 8 to 12 hour intervals as indicated by symptoms. The spinal tap is used (1) to determine the intracranial pressure; (2) to reduce the intracranial pressure; (3) to determine the character of fluid. Repeated taps will also furnish the more important information as to whether or not the spinal pressure is increasing or diminishing, which is also an indication as to whether or not further treatment is necessary. A word of caution about spinal taps probably would be in order. Like basal metabolism, spinal taps should be done under certain basic conditions; deep inspiration, holding breath, acute flexion of head, all exert pressure on venous system of head, and invalidate numerical reading. Under normal conditions the spinal pressure should be about 8 mm. of Hg. If manometer readings are always taken and only sufficient fluid removed to bring the reading down to 8 mm., or normal, serious accidents may be avoided. Some surgeons are even more cautious and draw off only sufficient to reduce the intracranial pressure by half. In several hundred taps, we have had no untoward accident. The fourth essential part of the dehydration is the limiting of the amount of fluid intake; a maximum of 20 ounces in 24 hours is given until the intracranial pressure warrants an increase. These measures, intravenous glucose, magnesium sulphate (always two hours after glucose), limited

(20 ounces) fluids, together with spinal taps, have in most cases proved themselves quite sufficient to control the edema and relieve the patient. The failure of these remedies is manifested by the following signs: (1) increasing blood pressure; (2) increasing pulse pressure; (3) slowing pulse, 40 to 60; (4) increasing spinal pressure as told by manometer; (5) stupor (gradually increasing stupor is indicative of cerebral edema and increasing intracranial pressure); (6) choked disc (comes on too late to be of value); (7) loss of autonomic control (indicating break). The foregoing signs are usually present in all cases of uncontrollable intracranial pressure, and are used as indication for the time for operative treatment. If the above treatment will not control intracranial pressure and the symptoms persist, subtemporal decompression may become necessary and should be done before break in autonomic control of cerebral center. The symptoms indicating an impending break of autonomic control are: Increasing temperature, 102 or above; very slow or irregular pulse; inversion pulse pressure and pulse rate, as indicated in stage 4. If decompression is done dehydration treatment should be continued as before operation.

The rationality of the treatment is apparent when the physiological effect of these drugs is considered. Glucose intravenously in concentrated solution is nontoxic and its dehydrating effect is specific, drawing the stored fluid from the body cells and intracellular spaces, thus filling blood vessels, while magnesium sulphate, on the other hand, draws its fluids from the blood vessels and thus by its hydroscopic effect eliminates from the body large quantities of fluids very promptly. Neither of these drugs has any specific effect on the brain substance per se, but lowered intracranial pressure is due to dehydration of the whole body.

SEQUELAE OR POST-TRAUMATIC NEUROSIS

Based on work of Fay and Pancoast, it now appears that many of these disabling and annoying conditions can be either prevented or controlled by the dehydration regime. The first important part in this regime is to continue spinal taps in the cases of intraspinal hemorrhage until all blood cells have been drained away as shown by centrifuged specimen. This is to avoid chemical reaction or meningitis which closes the pacchionian bodies and ports of exit around spinal nerves, thus blocking the normal drainage system of brain and spinal canal, producing a degree of hydrocephalus which, in turn, by hydrostatic pressure produces an ischemia and anoxemia of the cerebrum. This, if left unrelieved, soon becomes a fixed condition and forms a pathological basis for many so-called sequelae or post-traumatic neuroses, even accounting for periodic headaches and epilepsy.

The second important part in treatment is limitation of fluid intake to 20 ounces, which includes all fluids taken, such as milk, soup, coffee, tea, and so forth. The diet should also be free from salt and carbohydrates, which tend to fix fluid in the cells and prevent proper elimination.

CONCLUSIONS

1. Head injuries of type dealt with in this paper are of the most serious problems in surgery and in dealing with these cases the two surgical adages should always be remembered.

2. There is only one condition calling for immediate surgical operation — extradural hemorrhage.

3. Treatment of shock should be of prime consideration in most cases. Morphine, sulphate and atropine are contra-indicated.

4. Dehydration treatment, as outlined, has proved satisfactory in most cases.

5. Sequelae, or post-traumatic neurosis, can be prevented in most cases by the dehydration treatment, freeing the spinal fluid of blood as determined by the microscope, and prolonged period of rest.

REFERENCES

1. Bagley, Charles: Blood in the cerebrospinal fluid: Resultant functional and organic alterations in the central nervous system, Arch. Surg. 17:18, 1928.

2. Blahd, M. E.: Fracture of the skull and its complications, Am. J. Surg. 37:33, 1923.

3. Fay, Temple: The administration of hypertonic salt solutions for the relief of intracranial pressure, J. A. M. A. 80: 1445, 1923.

4. Fay, Temple; and Winkelman, N. W.: Widespread pressure atrophy of the brain, and its probable relation to the function of the pacchionian bodies and the cerebrospinal circulation, Am. J. Psychiat., 9:667, 1930.

5. Gage, I. M.: Acute traumatic craniocerebral injuries, Am. J. Surg. (new series) 6:64, 1929.

6. Haden, R. L.: Therapeutic application of alteration of brain volume by injection of glucose, J. A. M. A. 73:983, 1919.

7. Jackson, Harry: The management of acute cranial injuries by the early exact determination of intracranial pressure and its relief by lumbar puncture, Surg. Gynec., Obst. 34:494, 1922.

8. McClure, R. D.; and Crawford, A. S.: Management of craniocerebral injuries, Arch. Surg. 16:451, 1928.

9. Sachs, Ernest: Fractures of the skull, Surg. Clin. N. A. 2:1571, 1922.

10. Sachs, E.; and Belcher, G. W.: The use of saturated salt solution intravenously during the intracranial operations, J. A. M. A. 75:667, 1920.

11. Weed, L. H.; and McKibben, P. S.: Pressure changes in cerebrospinal fluid following intravenous injection of solutions of various concentrations, Am. J. Physiol. 48:512, 1919.

DISCUSSION

DR. R. B. RANEY (Phoenix): The paper just

read, it seems to me, quite thoroughly covers the field as far as the management of acute brain injury is concerned; however, in every part of the country, not only in well organized hospitals, but in rural districts, the laws of rational management have been so disastrously violated, with such an appalling mortality, that I feel a number of points which may be considered academic should be stressed and stressed rigidly. The field of neurological surgery is a field all in itself, and successful management of cases can be attained only through a thorough understanding of that with which we are dealing.

With the classification of favorable, borderline, and unfavorable cases, they all represent during the first few hours, shock, and to do anything with these patients other than supportive for the shock, is nothing short of criminal.

From day to day, in every hospital in the country, we see these patients brought in from the ambulances and transferred to the operating table, which will favorably compare with the removal of the criminal from his cell to the electric chair. Any patient operated during the stage of shock, who recovers, has done so in spite of the surgery, and I feel that this even holds true for intracranial hemorrhage. As we all know, during the stage of shock there is a marked diminution in the blood pressure and as hemorrhage takes place the pressure becomes equalized and bleeding ceases, so there is no ground gained in operating at this particular time. As the patient passes through the stage of shock, the blood pressure begins to rise and the signs of hemorrhage, coma, and so forth, if present, increase in intensity. This is well brought out in the midmeningeal artery syndrome, mild shock at first, patient conscious and feeling that he has probably escaped serious injury. A few hours later the blood pressure elevates, drowsiness develops, increasing to coma, hemiplegia, pupillary inequality, convulsive seizures and death, if not relieved.

One of the most valuable guides that we have toward surgical interference is the frequent recording of spinal fluid pressure. Shock is not a contraindication for spinal puncture. If the inflammatory reaction develops, it is usually at the end of 6 to 12 hours, the patient having survived shock to the stage of beginning medullary edema. It is in the first part of this stage that the better results can be obtained by decompression. If there is a marked rise in spinal fluid pressure, with the blood pressure climbing rapidly, but still within normal limits, and a similar condition existing in the pulse rate, decompression is indicated, and these cases will comprise approximately 30 per cent of cases that have survived the stage of shock. If we allow them to go on to the beginning stage of medullary compression, the surgical mortality will be just exactly 100 per cent.

After the patient has been placed at rest upon first admission and first aid measures have been attended to, I feel that spinal puncture with an accurate record of pressure, if possible, is a most valuable procedure, as it is associated with absolutely no shock and is without discomfort to the patient, if a little novocaine is used. During the stage of shock, if the pressure is considerably elevated, it may be diminished to the normal limits, for if the patient happens to be one of those that are potentially hemorrhage cases, wiht reduction of pressure to normal, hemorrhage will most surely occur. It is not so much of value in relieving pressure in the majority of cases as it is an index to pressure changes that develop during the subsequent stage. In other words, if a patient presents definite symptoms of acute brain, spinal fluid pressure is normal or slightly above normal, any deviation from this at subsequent examinations during the inflammatory stage is most helpful in anticipating acute medullary edema and compression before it precipitates. If there is marked increase in pressure at any of the subsequent examinations, edema and compression are most surely to follow. Operative procedure at any other stage represents poor observation or ignorance, the latter being a mental state that the law does not excuse. As to the question of limitation of spnial decompression, I personally prefer to withdraw fluid to the extent that the pressure remains at the upper normal limits or slightly above. This is especially true in diagnostic work, ventriculography, spinal puncture, cisternal puncture, and so forth, in the presence of organic brain disease, especially tumors. Any sudden deviation from the acquired pressure frequently precipitates fatal hemorrhage, complicated with an acute medullary compression. This is explained on the basis of hemorrhage from sudden pressure changes produced by rupturing of already diseased vessels, that is so characteristic of malignancies. However, in acute brain injury, the increased pressure is sudden in its onset and of only a short duration, and, resistance to high tension not having been acquired, there will probably be better response to upper limit normal pressure (12 to 16 mm. of mercury).)

In regard to decompression in the selected cases in which medullary compression has been anticipated, the procedure is associated, in the hands of a capable surgeon, with no shock whatsoever. It can usually be accomplished under novocaine infiltration and in a very brief period of time. The procedure of choice is the muscle-split incision in the subtemporal region, unless the injury and developing edema are in the posterior fossa beneath the tentorium; in this event, the suboccipital decompression.

In conclusion, the appalling mortality in acute brain injury will be tremendously diminished, providing the attending surgeon will refrain from the urge to operate during shock and anticipate impending medullary compression and administer surgical relief before the symptoms appear. The conclusions drawn may seem academic, but it is, unfortunately, true that good surgeons every day, in every part of the country, are violating every law in rational therapy of acute brain injury.

DR. E. PAYNE PALMER (Phoenix): The position of the patient, with head injuries, is important. The blood pressure is highest when the patient is in the recumbent position and lowest in an upright position. The Fowler position should be maintained as soon as the patient has recovered from shock.

Caffeine sodium benzoate, given intravenously or subcutaneously, will reduce the intraspinal pressure within a few minutes. Its administration should be repeated every two to four hours until the intraspinal pressure is normal.

Dr. Thomas has advised us against morphine. It should be given only when the caffeine is used, as it increases intracranial pressure. A prolonged rest during and after recovery, for weeks or months after head injuries, is necessary.

DR. A. P. KIMBALL (Yuma): Many times it is impossible to localize the head injury. The chief aids in diagnosis are that the pupil of the eye on the opposite side of the head contracts, the blood pressure on the opposite side is higher than other arm, and the axillary temperature on the opposite side is higher.

DR. JOHN J. McLOONE (Phoenix): Following skull fractures and concussion of the brain, we frequently encounter sequelae pertaining to either the labyrinthine or auditory function of the eighth nerve. Following head injuries of the above type, it is not unusual to see patients who suffer from

attacks of vertigo and diminished audition in varying degrees, depending upon the extent of injury and the location of the lesion resulting from the ccommotio cerebri; (2) commotio cerebri et auri inccommotio cerebri; (2) commotio cerebri et auri internae; (3) fracture capsuli labyrinthi. .

The first group includes cases in which the ear findings point to a central involvement of the eighth nerve; in the second group, we have those cases in which there is inner ear involvement due to a concussion of the membranous labyrinth. Transverse fractures through the petrous bone resulting in vertigo and deafness are placed in the third group.

It is estimated by various observers that skull fractures and concussions result in either temporary or permanent impairment of the vestibular and cochlear portion of the eighth nerve in 40 to 50 per cent of the cases. By the Barany and Kobreck tests, we can often disclose the location of the lesion. The degree of loss of hearing can always be ascertained by the usual functional test for audition.

DR. W. A. HOLT, (Globe): There has been much improvement in the handling of head injuries. Two or three decades ago it was quite the practice to take the badly injured head cases immediately to the surgery and subject them to a major operation. This practice is passe and we now accept the head injury as being an acute case requiring careful handling and study, the study consisting of keen observations as to shock, motor disturbances, rate and character of pulse, character of breathing, pupillary sensitiveness and irregularities, blood pressure and hemorrhages whether intra or extra dural. Intracranial hemorrhage is the most common cause of serious symptoms following injury to the head, which is fatal if unrecognized and unrelieved and which may be accompanied by fracture either simple or compound. The first 24 to 48 hours is the time of greatest importance in the handling of these cases. There have been many fallacies handed down to us regarding head injuries and particularly do I refer to the one of hemorrhage from the ears. The real old time medical men accepted and passed it along to us that hemorrhage from the ears was pathognomonic of fracture at the base and was just about 100 per cent fatal. I am sure that today we see numerous cases of head injuries with hemorrhage from the ears in which grave symptoms are absent and the x-ray is negative.

Blood pressure and pulse reading are very important and certainly tell a true story of the patient's condition. A slow pulse and a high systolic blood pressure, regardless of other symptoms, call for an immediate tapping, and in all severe head injuries a reading of pulse and blood pressure will place the medical man completely in control of the situation. And while speaking of pulse and blood pressure, please let me speak of the case of a miner who had fallen on his head and was brought in unconscious, with sterterous breathing, vomiting, restlessness, pulse 50, respiration 12, deep and heavy. Blood pressure 154/80, laceration of scalp in mid-vertex region, no paralyses, blood pressure rapidly climbed to 190, pulse 46 to 50 and maniacal symptoms appeared. A tapping of 30 c.c. of bloody fluid, which was under increased pressure, almost immediately relieved the mania which would again reappear when his systolic blood pressure rose to 190. For six weeks tapping was done on this man, one to three times every 24 hours, with a complete recovery. In this case there was evidently a disturbance in the equilibrium of the cerebro-spinal fluid, either an excessive secretion, or its gravity was added to by hemorrhage or there was an interference with its exit into the subarachnoid space through the roof of the fourth ventricle. In this case, although the x-ray disclosed a linear fracture of the right parietal bone, there was no indication for surgical intervention, causing us to believe that the gravity of head injuries depends upon trauma of brain tissue, hemorrhage and pressure.

DR. D. R. GASKINS (Phoenix): Dr. Muck of Germany has made a very interesting observation which is of value in those cases where there is a doubt as to which side there is a definite brain injury. He sprays a fine spray of adrenalin toward the floor of the nose, shrinking the inferior turbinate. A blunt probe is then pressed against the body of the turbinate in the longitudinal direction for a few seconds. A thin white line developing at the side of pressure is a positive reaction for injury to the cortex of the corresponding side. He explains the reaction as being due to a disturbance of the vascular fibers of the sympathetic which has a definite relation with the cortex. The test is also positive for brain abscess and tumors located near or producing slight pressure on the cortex.

DR. C. A. THOMAS (closing): Frequently patients are operated on in Tucson when they should be left alone. I am not familiar with Dr. Gaskins' method of determining the side of the head on which there is an injury. Cases in which there is increase in the pulse pressure, elevation of spinal pressure or elevation of blood pressure deserve dehydration. Long continued rest is essential. Spinal fluid should be drawn off at intervals until all blood, even microscopical on centrifuged specimen has been eliminated. This because it has been proven that blood left in spinal fluid causes chemical reaction which closes ports of exit of spinal fluid, thus interfering with the hydraulics of the brain, and giving hydrocephalus to a greater or lesser degree. This point has been demonstrated by Temple Fay and is possibly the cause of the unpleasant sequelae in many of these cases.

WHAT CONSTITUTES A MODERN BONE SURGEON

WILLIAM L. BELL, M.D.,
Oakland, California.

(Read before the Fortieth Annual Meeting of the Arizona State Medical Association, held at Nogales, May 7-9, 1931.)

"What Constitutes a Modern Bone Surgeon?" You have given me freedom and wide latitude in the selection of this subject. Aside from the grammatical inelegance of the title, two fundamental errors are evident at the outset, too much subject for the generous time allotted and too much subject for the speaker persenting it. Permit me to say that one may voice standards and requirements which he does not pretend to possess.

The modern bone surgeon faces a complexity of contradictory and, apparently, equally well-grounded opinions. It would appear that a narrower classification of surgeons, rather than methods, would give us a more dependable answer.

I feel that my personal surgeon should know when to apply skin traction, naturally the safest, then skeletal traction and, third, open reduction. I do not desire to suffer for

days and weeks under a simple method to find that, after this suffering and fibrosis, I must have an open reduction or some other method done at this difficult stage. Nor do I wish to have much cutting and prying and drilling done, for a thing which could have been accomplished more painlessly and safely. Both the orthopedic surgeon and the bone surgeon claim invasion of their territory. The orthopedic surgeon is widening his activities, as compared with the original acceptance of the term. No definite line of cleavage exists. I would prefer to have a good arthroplasty or a good saucering by a bone surgeon than to have an ineffectual one by an orthopedic surgeon, or the converse of this, if the orthopedist happened to be more capable. In short, good surgery is just that, without regard to the surgeon's title, and I feel that no cause whatever for argument exists between the many poorly defined specialties. Too many border-line disputes and technicalities arise in what is one great subject. In this disputed area, fundamentals are not in the least involved and what are good methods for one group are equally good for the other.

In short, the professionally equipped fracture surgeon must present a spectrum of versatility from the simple board splint and quick manual replacement on the left, through all the methods of tongs, pins, plaster of Paris, zinc gelatine, moleskin, adhesive, semi-internals, and true internal fasteners, absorbable and otherwise, to the extreme right wing, calling for that rarest of devices, the true internal splint. This may be flashed in one sentence but in practical knowledge covers more than I think any one man has as yet mastered. I do not believe that any single principle is ever ideally applicable to all cases, nor do I believe that any individual surgeon, however vast his experience may be, has encountered all the indications. Granted that he has encountered them, has he been wide enough and clear thinking enough to have employed, let us say, just the best method in just the right case.

I understand that one of our captains of vast industry expected fifty per cent of mistakes from his employes. That would hardly suffice in fracture work. I think five per cent should cover a sufficient number of mistakes, and disagreements and retrials in this work. This may be too narrow. I have known men of excellent judgment who argued for thirty per cent.

As briefly as possible, I shall now give you one case history, representing what I claim to be a near approach to an internal splint. That we had a sufficient result does not justify this. The question is, just what else could we have done at this time short of amputation? I should be glad to have vigorous and free expressions of views concerning this.

This middle-aged, sturdy woman was dragged some two hundred feet along a board fence by a motor bus running wild. I was a spectator until about the eighth day after accident. She was literally perforated with wood splinters from the dimensions of a match to the size of a full-sized lead pencil, some dozens of perforations. No internal perforations at all. The only normal area as to skin was her right thigh, tuber ischii to knee, and this contained a shattered femur about its middle. I never saw so much pus pour from a patient. She was bathed in it, almost swam in it. She was tipped to the left, supported, hosed, what not. Her general condition was surprisingly good, but we could not devise any splint that would not become soaked in an hour; pulleys and weights, with penetrating pins, with the constant movement necessary, seemed out. With repeated skin preparation and enormous vaseline walls, and vaseline packs and lamps, the thigh was prepared for two days, the vaseline partly removed, a quick long incision made and an enormous concave steel plate bolted through the reduced fragments. Practically no external splinting. I never saw a finer primary union nor a better bone result. Pain was negligible after operation. This patient had some other worries. She came right through to a quick convalescence and had ultimately about five degrees loss of full flexion as compared with normal knee.

Were we justified in risking the patient's life by this method? We could not let her welter in pus. The agony from necessary moving was killing her. Enormous opiates were certainly not curative. Amputation, I felt, could be done later if necessary. We have very competent one-method men who have told me that they considered it never necessary to use open methods. We have others who colorfully, indeed, and efficiently do much open work. Frankly without criticism, I hold that both views are just a trifle restricted. In indicated cases I feel that open work fastenings are better accomplished with absorbable material rather than with steel plates and screws. Yet nothing but steel would have answered in the case just described.

So my contention is that such a field is not so simple; that it requires absence of jealousy, an open mind, a certain boldness,

a wide knowledge of materials and methods. I feel that the experienced surgeon is fully justified in doing an occasional open reduction when his particular case presents conditions and indications of which he only can be the judge.

DISCUSSION

DR. J. M. GREER (Phoenix): Far be it from me to really discuss Dr. Bell's paper; however, I should like to emphasize a few points brought out by Dr. Bell. As he has said, "I feel that my personal surgeon should know when to apply skin traction, skeletal traction and open reduction."

This all comes back to surgical judgment, which is the all-important thing, after all. The ideal surgeon, of course, would be the one who could, at the outset, decide upon the proper method of treatment and care for the particular case at hand and outline it from beginning to end in his own mind, as well as in the minds of his associates and helpers, and carry this procedure through. It is true that some bone cases are applicable to the "cut and try" method, but the greater the experience of the surgeon the fewer cases he will see of this type.

It is my feeling that the general practitioner should pay more attention to bone surgery. I do not mean that he should waste his time—and it would be a waste of time—in fitting himself to do highly specialized bone operations with Lane technic, and so forth. But he should be able to visualize in his own mind the entire treatment of a bone case and start it out accordingly, whether he intends to finish the treatment or not.

I might illustrate this by a recent example. A doctor called me on the phone saying he had a severe injury of the forearm in which there was laceration, contusion, marked swelling, and fracture of both bones of the forearm, with over-riding fragments. He said he did not think he could reduce it and if he attempted it he would only produce more traumatism, and if he did succeed in getting it reduced he did not believe that it could be held. He said, "Suppose I clear up the infection, get the swelling down, and send him on down to you for open reduction." This doctor could visualize the treatment of this case from beginning to end.

As to percentage of mistakes that Dr. Bell mentions, of course there will be mistakes and plenty of them. However, I believe that more careful study of the patients and their physical and mental make-up, as well as the mechanics of their bone conditions, will cut down this percentage. I should like to make a plea for a more careful study of our end results, one, two, three and five years following first treatment.

As to one-method surgeons, I do not believe we should have them. I know a very competent bone surgeon who once said, "I am off of steel plates and metal of all kinds; I have not used one for four years or more," and he had a large fracture service. Within the next two weeks or so, he told me, he plated three cases. He is certainly a surgeon with an open mind.

If I may be permitted to discuss or mention something that was not included in Dr. Bell's paper, may I here make a plea for the patient. In severe injuries, with shock, particularly head and spinal injuries, may I ask that the patient be treated and his bone injuries receive secondary consideration, for the time being. May I ask that the patient not be turned over to an x-ray technician to be rolled and tumbled about to get proper x-ray exposures and films, the only value of which would be to satisfy early curiosity of the surgeon, the patient's relatives or an over-anxious insurance adjuster.

Again, may I ask that our "modern home surgeon," when given a severe case with shock and fractures with displacement, be not too eager in his desire to get a mechanically accurate adjustment of the fractures and lose sight of the general condition of his patient. I believe that if this be kept in mind, we can save some of the patients who would otherwise be lost.

In closing my remarks may I ask: First, that we always keep an open mind in the treatment of our cases; second, that we keep ourselves informed as to all methods of care and treatment; third, that we study carefuly our end resuts; fourth, that we treat our patients, as well as their bone injuries and bone conditions.

DR. A. P. KIMBALL, Yuma, Ariz.: I would like to ask Dr. Bell if he does not get more rarefication with steel plates than he does with autogenous material. Does he advise the use of steel plates in preference to autogenous bone grafts?

DR. WILLIAM L. BELL (closing): This case was a problem to all of us. Of course we could have amputated. The preparation of the skin was not so difficult as it seems, so long as organisms are not embedded. We used five pounds of vaseline. We did ordinary routine preparation of the skin, and afterward used a thermolite lamp. The vaseline was rather unsatisfactory, as it melted, and we finally used one centimeter of vaseline uniformly over whole thigh held in place by a thin plaster cast, through which a large fenestrum was cut. I like to use a soft absorbable ox-bone screw that is thoroughly sterilized by heat and pressure in cases in which bone stimulation is not necessary, but of course we need to use autogenous grafts where bone stimulation is needed. Tibias from which grafts have been taken are sometimes left in a painful condition. In using bone grafts, however, use large slabs of bone, i. e., large enough to insure growth of the transplant and secure fixation. We do not find much tendency to infection. We prefer to fix all autogenous grafts with ox-bone screws rather than with gut or kangaroo tendon.

THE NEWER ANESTHETICS

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(Read before the Fortieth Annual Meeting of the Arizona State Medical Association, held at Nogales, Ariz., May 7-9, 1931.)

No chapter in the history of medicine is more fascinating than that relating to the development of anesthesia. We have had during the past year or two more articles written upon "The Newer Anesthetics" than upon any other subject; the literature now has assumed vast proportions, clearly showing the interest that has been aroused in the improvement of anesthesia. It is possible only to point out here and there certain events and names which have served as milestones in the path of our progress. Every clinic of any size or importance has given these different drugs a tryout in order to determine for themselves the best results obtainable.

Agents and drugs have been developed by the different pharmaceutical houses, who are our benefactors, until now we have what we term the "newer anesthetic" drugs and auxiliaries as aids, which, together with our es-

tablished anesthetics, are a great improvement in the operative procedure and for the patient's welfare. But the fact remains that the ideal anesthetic is still in the future, a veritable will-o'-the-wisp.

We recall that there have been many shifts from one anesthetic to another. For many years surgeons were content to feel that the use of chloroform was satisfactory; then came ether as a still safer method; later, came the gases, first of which was nitrous oxide, and later ethylene, both distinct improvements in so far as the comfort and safety of inhalation anesthesia is concerned. Novocaine supplanted the very toxic cocaine, and then local anesthesia became more popular.

The ideal anesthetic is, of course, one causing the patient no discomfort, with freedom from danger, affording a depth of anesthesia under which operative procedure can be carried on easily, and producing minimal injurious effects and sequelae. Still further, in order to be ideal for abdominal work, an anesthetic must afford sufficient relaxation to make the work of the operator easy and, especially, without trauma to the abdominal contents.

In our present day a wide range of anesthetic agents are required due to our increasing and rapid advancement in both medical and surgical knowledge. We do not have, up to the present time, a single agent that fulfills or even approaches the fulfilment of our requirements; but, with the newer agencies combined, we feel that we are now nearer an ideal anesthetic.

Of the newer anesthetics and adjuncts that we shall discuss are: nupercaine, pernocton, avertin, local, spinal, luminal, and sodium amytal. These are the agents and adjuncts that are apparently being used more than any others by the surgical world at this time.

Nupercaine is an agent that is supposedly more ideal than novocaine in that its action is more prolonged. Reports have been received regarding its combination with novocaine for spinal anesthesia; thereby making an ideal anesthetic for prolonged operation. However, time will soon tell whether or not it has proved its claim for local as well as for spinal.

Pernocton, a German product, should be mentioned as one of the newer anesthetics. We have had no experience with it, and could only quote literature, which is very extensive. Frielander, in a recent paper, had a bibliography of 195 articles, practically all from German authors. From a study made of the papers, I feel that avertin, sodium amytal, and other drugs at our command fulfill all the requirements or indications offered by pernocton.

Luminal is an adjunct suitable as a psychic sedative to a certain degree. Bartlett and a few others seem rather strongly in favor of it, but, as a barbital preparation, I see no advantage in its use over sodium amytal.

Sodium amytal, at the present time, seems to be the most popular and the most satisfactory of any of the sedatives or preliminary anesthetics used. The chief advantage of sodium amytal in surgical management is the way in which it spares the feelings and nerves of the patient. He is put to sleep in his room and remembers nothing of the dreaded trip to the operating room. My personal enthusiasm for its use, though great, need find no further expression here, since it will be fully discussed by Drs. Palmer and Fournier under the title of "Sodium Amytal in Surgery and Obstetrics."

Avertin, the new German anesthetic, chemically known as tribromethyl alcohol, in our opinion has a definite place among the anesthetic agents now available, and we are very enthusiastic in its use for many operations, especially those about the head and neck, i.e., neck dissections, lip resections, and plastic repairs.

We believe that it is entitled to a fairly high rating in respect to safety, and the outstanding feature which makes avertin such a remarkable agent is the ease with which anesthesia is produced. No anesthetic with which we are familiar approaches it in this respect. Although used in over a hundred thousand cases on the continent, and in this country since 1929, we now regard it as not sufficiently safe to be used for complete anesthesia but in a limited number of patients. Other cases require a light gas anesthesia, a small amount of inhalation anesthesia, or only local infiltration occasionally administered during the operation, to produce the desired result. In this particular, it is interesting to note many times the small amount of the latter agents needed to produce anesthesia.

When prepared with perfect accuracy and given with meticulous care, anesthesia is obtained usually lasting about two and one-half hours. This feature aids materially in lessening the postoperative pain, and eliminates nausea (postoperative) and vomiting to a marked degree. Like any other rectal anesthetic, it presents one difficulty, however, in that the regulation of dosage is practically impossible once the drug is administered. The dosage, although regulated according to the individual's weight, is variable, and must be varied according to the experience of the

operator. To meet the requirements of a basic anesthetic, 80 milligrams per kilo body weight is recommended. As experience in administration is gained, it will be necessary in some cases to administer 100 milligrams per kilo body weight, particularly in the young healthy individual.

No attempt should be made to administer it in "shock predisposed" patients. It is contra-indicated in severe diseases of the liver and kidneys, advanced pulmonary tuberculosis, ulcerative diseases of the rectum and colon, extreme cachexia, anemia, in extremely delicate children, and in dehydrated and elderly patients. Avertin should be used with great care.

We received two consignments direct from Germany some time before the drug was available, and used it in fourteen cases as a complete anesthetic, using 110 mgs. per kilo, and it proved most ideal with the exception of one death which could possibly be attributed to avertin. We are now using it only as a basic anesthetic, giving as a maximum not more than 100 mgs. per kilo.

As there are two papers following this one on these newer anesthetics, and as obviously this is too large a task for one, I shall make here just a few remarks with examples on the selection of an anesthetic which will be to the best advantage of the patient.

Figures showing the death rates of the various agents must be considered, but there may be other factors which often lead us to disregard the actual statistics and force us to use an anesthetic which would be considered a greater risk. To illustrate: Avertin, we have admitted, has too high a death rate to be used for full anesthesia, and yet in carbuncle of the upper lip with pus exuding, extreme swelling, tenderness, and its proximity to the nose and oral cavities, and when ligation of the angular vein is indicated, it is the judicious choice for complete anesthesia. Obviously local and spinal are impossible; the using of a mask for a general anesthetic, with the danger of pressure and infiltration of the surrounding tissues and inhalation of pus, is clearly out of the question. Too, a cautery would be dangerous in combination with ethylene or ether. Avertin in this instance meets all the requirements, and the advantage in its selection is inestimable.

Local anesthesia is still one of the safest methods, and in selective cases, in conjunction with the preliminary newer auxiliaries, makes for ideal surgery in many more procedures than has heretofore been the case.

We are enthusiastic in regard to spinal anesthesia for surgery below the diaphragm, and have used it in 570 private cases since 1927. However, we do not use it in all hernias or hemorrhoids when local is considered just as satisfactory.

We do not use spinal in children under the reasoning age, or on people who can not be readily sold to its advantages, and spinal anesthesia is contra-indicated in the following: infections of the skin on the back; general septicemia, syphilis; where there is any possibility of cerebral or cord tumor; a possible meningitis; where turbid fluid is found on tapping, or on a bleeding patient, or on one whose loss of blood has already caused a decided drop in blood pressure.

Patients with a very high blood pressure and marked sclerosis are perhaps better suited to inhalation anesthesia if other conditions present permit. In an abscess, peritonitis, or perforation of the lower abdomen, spinal is not the choice on account of the Trendelenburg position during the operation and postoperatively, and because of the possibility of more soiling of the peritoneal cavity in perforations.

Fractures are most ideally adjusted by local infiltration into the hematoma around the fractured ends of bones. It is remarkable how relaxed the muscles become when novocaine is instilled only in the bloody space at the fracture ends. When the needle is thought to be at the site of the fracture, aspirate, and if blood and serum are obtained, then slowly fill with novocaine and allow three to five minutes before manipulation. One mistake that I made at first was to use the accustomed ½ per cent, which, when diluted, as it obviously is by fluid, makes a solution too weak. Therefore, one should use a 1 per cent or a 2 per cent solution, as it does not require a very large quantity of fluid. If the periosteum is injected close to the fractured ends, it will help, though that is not necessary. Recently there have been written three articles on this procedure, by Englsih, German, and American authors, who very convincingly have demonstrated its use and practicability.

Dislocations are just as painlessly reduced by injecting a 1 per cent solution into the joint space. The efficacy of this procedure is shown by complete muscular relaxation and lack of pain on reduction.

In the lower extremity, 50 mgs. of novocaine in a small amount of spinal, is ideal. However, if local does just as well, probably its use here is more desirable, even though I am admittedly a spinal enthusiast. It is a great advantage in that many cases can be treated in the office, can be fluoroscoped easily, and hospitalization can be avoided if an anesthetic must be given.

Ethylene is very popular among our local

surgeons, and it is to be hoped that with extreme care we may be spared an explosion.

The following table will show a percentage of anesthetics for the past six years, which will cover the period of our awakening to duty in better anesthesia and especially better selection for individual patients and different operative procedures.

	Ether	Gas	Local	Sacral	Spinal	Ether-oil	Avertin
1925	44	20	34	2			
1926	45	25	28	2			
1927	36	34	28		2		
1928	19	30	25		25	1	
1929	12	21	26		38		3
1930	9	17	17		56		1

We do not use sacrals any more, as we believe spinal in small quantity of fluid is easier to administer, more sure, and equally safe.

SPINAL ANESTHESIA

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(Read before the Fortieth Annual Meeting of the Arizona State Medical Association, held at Nogales, Arizona, May 7-9, 1931.)

The popularity that spinal anesthesia has received in the past three or four years is caused, without doubt, by the dissatisfaction which other methods of anesthesia have given. To those of you who have used spinal anesthesia to any extent and with any degree of success, it is very apparent why this method is becoming so popular. The ease with which you can perform your operation, the relaxation, especially of the abdominal contents, the minimum hemorrhage, and the confidence you have in the ultimate outcome of the surgical procedure. John B. Deaver[1] in a recent article certainly stated the truth when he said "Spinal anesthesia makes the surgeon master of the situation."

I do not believe that you are interested in the history of spinal anesthesia more than in the fact that Dr. J. J. Corning[2], in 1885, produced, accidentally, the first spinal anesthesia in a dog by injecting 2 cubic centimeters of 1 per cent cocaine solution into the lumbar region. You are all acquainted with the dissatisfaction and the high mortality rate which eventually followed this discovery. And not until 1908 did the method really show any real improvement and this was due to the courage and perseverance of Wayne Babcock[3] who really stands out today as a pioneer in this method of anesthesia. However, it remained for Labat[4] and Pitkin[5] really to bring this method into the popularity it enjoys today. Pitkin probably has done more to bring this method into general use than any one of the pioneers of the procedure, due to his experiments and the formation of a lighter than spinal fluid preparation called spinocaine, also to his use of the different degrees of Trendelenburg position, depending upon the result desired.

It is impossible at the present time to state how many cases have been operated upon by spinal anesthesia, owing to the fact that many surgeons have not reported the number of cases on which they have used the method. However, Rygh[6] and Bessesen compiled statistics in 1928 of 44,241 administrations of spinal anesthesia, with four deaths; Tendler[7] tabulated 326,910 cases, with 80 deaths (this embraced a large variety of technics and drugs used); Koster[8] has reported over 6,000 cases with a mortality rate of nine deaths. Deaver has reported over 5,000 cases with only one death and that was due to the fact that, by mistake, apothesine was used instead of novocaine. Babcock has reported over 6,000 cases with twelve deaths—up to 1914. Case[9] reports 1,100 cases without a single death. Labat reports 12 years' use without a single death; and the Jackson Clinic[10] reports 1,000 cases without a single death and reports 80 per cent of the major operations at the Jackson Clinic being performed under spinal anesthesia. Campbell of Bellevue also reports 1,520 urological cases, with one death.

I could quote further statistics like the above, but I feel all of you are aware of the effectiveness of this method provided the technic of the preparation which you are using is followed, according to that individual preparation. I am sure that most of you are aware of the Pitkin technic, in which the patient is placed in a lateral position upon the table with the knees and chin brought together as nearly as possible, and in this position the preliminary injection of 50 milligrams of ephedrine and 1 per cent solution of novocaine is injected, to prepare the patient for the introduction of the 20 or 22 gauge 45-degree-angle Pitkin needle. The skin and subcutaneous tissue down to the spinal column is anesthetized, then the Pitkin needle is introduced until you feel the snap as it enters the subdural space. The stylet of the needle is withdrawn and care is exercised that the needle is not displaced. The syringe with the spinocaine is attached to the needle and barbotage is then carried on, depending upon the anesthesia desired, from 4 to 8 c.c. spinal fluid being drawn back into the syringe and mixed with spinocaine. The needle is quickly withdrawn and the patient is then straightened out on the table and dropped to the Trendelenburg position to the desired degree.

The Labat technic with neocaine differs only in the fact that the patient is placed

on the table in a sitting position and bent forward, and the preliminary local anesthetic given without ephedrine. Dr. Labat advises a medium gauge 80/1 nickeloid Labat needle for withdrawing the spinal fluid, which is allowed to drop into an ampule of neocaine of 1/10 to 2/10 gram, as deemed necessary for the surgical procedure contemp'ated. After the ampule, which holds 3 c.c., is full, the stylet is placed in the spinal needle and, with the syringe, the solution of neocaine and spinal fluid is thoroughly mixed until all crystals are dissolved. As soon as this has been accomplished the syringe is attached to the needle and barbotage is carried out, always reducing the quantity of new fluid aspirated, as lower punctures are made, in order to lower the level of the anesthesia.

In other words, Labat advises, upon connecting the syringe to the needle and aspirating as much new spinal fluid as the amount the syringe contains, and then injecting more than half of the contents of the syringe, lowering the aspirations and the fluid in quantity equal to that remaining in the syringe and again injecting more than half of the contents of the syringe. These maneuvers are repeated three or four times until the syringe is emptied. The needle is then suddenly withdrawn and the patient is placed flat on his back and the head of the table lowered just enough to raise the patient's pelvis above his head. This must be done without loss of time and in this position the patient must stay until the operation is completed. Anesthesia sets in rapidly and is completed by the time the operative field is prepared and the duration of the anesthesia varies from 45 minutes to one and a half hours. The patient should be removed from the operating table in the same Trendelenburg position that he occupied on the table and should be kept in this position for at least three hours after the operation. If you do not have a stretcher where the head of the patient is lower than the pelvis, one may use a cushion to raise the pelvis higher than the head and, when the patient is put to bed, the foot of the bed is raised and placed upon the seat of a chair, if shock blocks are not available. A preliminary injection of morphine, 1/6 to 1/4, and scopolamine 1/100, is given one-half hour before the patient goes to the operating room.

Labat advises cold sponges to the face and neck in the presence of nausea. The nose is closed with the fingers used as a clamp on the nostrils and the patient is forced to take deep breaths through the mouth. He also advises caffeine or strychnia one-half hour before the operation on account of its effect upon the tone of the heart muscle, if it is deemed necessary. For the post-operative care, he advises a cup of black coffee taken by sips, occasionally an ounce of whisky.

In referring again to the mortality of this method, it is no doubt apparent that many operations are being done under spinal anesthesia today that formerly were considered inoperable, and not only inoperable but fatalities as well. When we stop to realize the wonderful change in the situation today by the use of this method, only then can we realize the benefit to humanity that the introduction of this method has brought.

There is at present a wide divergence of opinion as to whether this method should be used for operations above the diaphragm. Labat[4] claims that spinal anesthesia should not be used for any operation above the diaphragm. Koster[5] has done many operations above the diaphragm—more than 27 mastoids with perfect anesthesia, minimum hemorrhage and without any pulmonary complications—and claims, also, wonderful results in tendoplasties in the upper extremity.

Everyone who has used spinal anesthesia is impressed with the manner in which spinal anesthesia facilitates abdominal surgical procedure. The lack of unnecessary and harmful trauma of the peritoneum certainly goes a long way to prevent post-operative complications and possible death of the patient. The block of the afferent and efferent nerves, with the prevention of shock, which was brought so noticeably to our attention by none other than Crile[12] many years ago, adds an additional safety factor in many cachectic, anemic, nephritic, pulmonic and toxic patients. One has only to compare the patient operated upon by the inhalation method and the one operated upon by the spinal anesthesia (block) method to note the difference in the amount of nursing care necessary. This would lead one to conclude that spinal anesthesia is followed by fewer sequelae than inhalation anesthesia, and it is natural for us all to form an opinion of the merits of any procedure by the clear impressions reached through a comparison.

While I can report only seventy cases of spinal anesthesia, yet the contrast is so apparent, the complications are so much fewer, the well being of the patient is so much enhanced by spinal anesthesia, that it is my impression that a decided reduction is made in the length of time these patients are hospitalized. Thus it may be seen that this method is an economical measure as well as a safety factor. In this number of cases I have never felt at any time that my patients

were in any danger whatsoever with reference to anesthesia, and, so far, I cannot attribute any mortality to this method of anesthesia. There is only one thing about spinal anesthesia that to me has been a disappointment and that is that I have had cases in which, apparently with excellent technic, the desired degree of anesthesia was not obtained, even when a second injection was given. The most peculiar part of this is that for a period of over one and a half years, my results were, to me, nearly perfect and in the only cases in which I did not obtain perfect anesthesia, upon serious thought I could blame my technic for that lack and that failure. But recently I have noted that, even after a second injection has been given, in some cases a supplemental anesthesia, such as a few whiffs of ether, was necessary in order to finish the operation.

I have carefully examined and studied these cases and the only conclusion I could reach was the fact that possibly the drugs used had lost their potency or strength and I have, therefore, taken the matter up with the different manufacturers, sending in my old preparations for new. Naturally, if such results as I have recently experienced would happen in a large, busy, surgical clinic, it would be very disastrous and would cause a great loss of time. I note only slight reference to the lack of obtaining anesthesia in the articles read, and am wondering if other surgeons are having the same results as I have recently experienced. However, I do not feel discouraged with the method, because I have had so many brilliant results from its use for such a long period of time I feel that, with a change to fresh preparations, there will be a change to better anesthesia.

Koster and Kasman[5], after extensive experiments, were able to employ spinal anesthesia in every form and type of operative procedure encountered in an active surgical service. They found that the height of the anesthesia is regulated by the amount of spinal fluid utilized for dissolving the drug. In other words, the greater the amount of spinal fluid withdrawn, the greater will be the amount of diffusion and therefore the higher the level of the diffusion and of the anesthesia. This is according to the law of diffusion of liquids under pressure. The diminution of the cerebrospinal fluid pressure caused by withdrawing a greater amount of spinal fluid, causes greater diffusion of the re-injected fluid. All their spinal taps and injections are made in the interspace between the second and third lumbar vertebrae. They have found that 1/10 gram of neocaine dissolved in approximately 4 c.c. of spinal fluid, which is what the ampules of neocaine hold, is sufficient for the average operation below the diaphragm, if completion of the operation can be expected within 50 minutes. If anesthesia of the head and thorax is desired, 250 milligrams of neocaine dissolved in 8 c.c. of spinal fluid and injected between the second and third lumbar vertebrae, are used. This method applies to adults and children over seven years of age. Under that age the dose must be diminished proportionately. Between five and seven years of age, head anesthesia can be obtained by means of 150 to 200 milligrams of neocaine dissolved in 6 c.c. of fluid. Between the ages of two and five similar anesthesia may be obtained with 100 to 150 milligrams dissolved in 4 c.c. of fluid; and below the age of two years, head anesthesia can be obtained with from 5/100 to 1/10 of a gram dissolved in 3 c.c. of cerebrospinal fluid.

There is another preparation which I wish to mention that has created very favorable comment from those who have used it, both in Europe and in the United States. This preparation is called percaine in Europe, but goes under the name of nupercaine in this country. The claims for this preparation are that anesthesia is very much longer in duration than with preparations of novocaine, thereby giving the surgeon ample time to complete extensive operative procedures without the aid of supplemental anesthetics. Many operators using this drug claim the anesthesia lasts from one and a half to ten hours. The average duration was between seven and eight hours.

This preparation is given as follows: The patient is given, as a preliminary injection, morphine gr. 1/4, scopolamine gr. 1/200, half-hour before before the time of operation and, at the time of operation, 50 mg. of ephedrine. With the patient sitting on the operating table, bent over and supported by assistant, the skin and subcutaneous tissue is anesthetized with 1 per cent novocaine or with 1-1000 solution of nupercaine. Spinal tap is then made and 10 c.c. of spinal fluid drawn off, stylet inserted into spinal needle, and 2 c.c. of spinal fluid discarded if 2 c.c. of nupercaine (1-200 solution) is used. If only 1 c.c. of nupercaine solution is used, then 1 c.c. of spinal fluid is thrown away; in other words, same amount of spinal fluid is thrown away as amount of nupercaine solution to be injected. After mixing the nupercaine solution thoroughly with the withdrawn spinal fluid, it is reinjected very slowly into the subdural space. After this the patient is put into the Trendelenburg position and operation started. No bar-

botage. The patient is kept in the Trendelenburg position for at least three hours. This produces an anesthesia sufficient to perform any operation below the diaphragm.

Records of over a thousand operations performed by the use of this anesthetic agent, nupercaine, where proper dosage was used, show no alarming symptoms and, in most cases, perfect anesthesia and a marked difference in the curve of blood pressure as compared with novocaine and spinocaine. A whole series was plotted by Keyes and McLellan[12] and they find that the nupercaine series shows a much smaller drop in blood pressure and that the pressure returns to normal as soon as it does after novocaine.

The contra-indications of the spinal analgesic method also have a difference of opinions expressed by different operators. Labat claims that the method should not be used for operations above the diaphragm, while Koster claims it is just as safe for operations above the diaphragm as below, and has ably demonstrated, according to his reports and experiments, that he is correct in that opinion. He claims that the only contra-indications to the method are suppurative processes in the region of injection or suppurative disease of spinal column, and cerebellar neoplasms.

In controlling the blood pressure drop, prompt tilting into the Trendelenburg position is the only measure that has been found that will alleviate the anemia of the brain which occurs when the blood fills the splanchnic area following the subdural block.

The indications for spinal anesthesia are:

(1) Prevention of pulmonary complications, either in those who are normal but suffering from an acute infection of the nose, throat or lungs, or in those suffering from some chronic infection of the lungs.

(2) Cardiac cases with failing compensation, hypertension cases, hypotension cases, and cases suffering from shock, either from toxic obsorption or from trauma.

(3) The aged, cachetic, especially cases of hypertrophied prostate, diabetic gangrene, hernia, and pelvic, perineal and rectal disorders.

(4) Intestinal obstruction, strangulated hernia, and acute abdomen.

(5) Fractures of lower extremity and all bone work of lower extremity, on account of prevention of shock from bone trauma.

(6) In nephrectomy, peritonitis, gastric and gallbladder surgery and especially in cesarean section.

SUMMARY

Spinal anesthesia offers to the surgeon who is careful in the details of his technic, the maximum of safety, total freedom from pain, complete relaxation with quiet intestines, and a minimum of hemorrhage; needing little or no artificial restraint, with a complete anoci-association, as detailed by Crile[11], with a simple surgical technic which has broadened the field of surgical endeavor to a marked degree, with a decrease in mortality rate, in pulmonic, cardiac and nephritic cases and in the aged and cachetic, that is impossible to accurately tabulate; bringing with it a smoother and less complicated post-operative convalescence.

REFERENCES

1. Deaver, J. B., An opinion on present high operative mortality in acute appendicitis. S. G. & O., 51: 529, (Oct., 1930).
2. Corning, J. J., Allen's Local Anesthesia, (2nd Ed.), W. B. Saunders Co.
3. Babcock, Wayne W., Spinal anesthesia; experience of 24 years. Am. Jour. Surg., 5:571, (Dec., 1928).
4. Labat, G., Elimination of dangers of spinal anesthesia. Am. Jour. Surg., 5.537, (Dec., 1928).
5. Pitkin, G. V., Controllable spinal anesthesia. Am. Jour. Surg., 5:537, (Dec., 1928).
6. Rygh, E. A. and Bessesen, D. H., The causes of death from spinal anesthesia. Minn. Med., 11:744, (Nov., 1928).
7. Tendler, M. J., Spinal anesthesia. Memphis Med. Jour., 6:143, (July, 1929).
8. Koster, H. and Wentrob, M., Spinal anesthesia fatalities. Am. Jour. Surg., 9:234, (Aug., 1930).
9. Case, J. T., Lumbar anesthesia. Am. Jour. Surg., 5:615, (Dec., 1928).
10. Jackson, A. S., Spinal anesthesia in major surgery. Am. Jour. Surg., 9:256 (Feb., 1930).
11. Crile, Anico-association. W. B. Saunders Co.
12. Keyes, E. L. and McLellan, A. M., Preliminary report on new local anesthetic (nupercaine). Am. Jour. Surg., 9:1, (July, 1930).

THE CLINICAL APPLICATION OF SODIUM AMYTAL IN SURGERY AND OBSTETRICS

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(Read before the Fortieth Annual Meeting of the Arizona State Medical Association, held at Nogales, May 7-9, 1931.)

The ideal anesthetic is yet to be found. Since the days of Crawford W. Long and Horace Wells the medical profession has been busy improving methods of administration and seeking new anesthetics.

When one of the authors of this paper began the practice of medicine, chloroform was the anesthetic most generally used and he read a paper on the superiority of chloroform as an anesthetic, before this association thirty years ago, which was later published in the New York Medical Journal. At a later date, ether, by drop method, became the anesthetic of choice and many still think it is our best anesthetic and, the world over,

its use is most general. The discomforts experienced by the patient during its administration and the large amount necessary to produce anesthesia and relaxation in most cases, frequently result in post-anesthesia nausea and vomiting and other more serious complications and sequelae. All patients object to ether as it is usually administered.

Realizing that, in the selection of an anesthetic, the patient's comfort and preference, the rapidity of induction of narcosis, safety during administration, and the possible harmful effects upon the body tissues are of paramount importance and in order to try to overcome the objection to or fear of anesthesia that so many patients have, we have used practically all of the various anesthetics as they have been proved and popularized, and, while all of them have their advantages, we were frequently compelled to resort to the use of ether supplementary to the other anesthetics.

For two years we have used sodium amytal or iso-amylethylbarbituric acid, intravenously, by mouth and rectum, as a preliminary medication prior to the use of various inhalation, local, and spinal anesthetics, and for one year, have been using it intravenously and by mouth, in obstetrics.

The increasingly satisfactory results obtained and the patients' enthusiasm for this method of induced anesthesia, make us feel that we are justified in recommending it to you for your serious consideration. The particular advantages of this form of hypnosis are that the patient is put to sleep quietly, pleasantly and rapidly in her room, thereby avoiding the apprehension, excitement and worry incident to being "taken for a ride" to the operating room; protection is afforded against the undesirable psychic effects of the operating room; there is absence of the knowledge of the discomforts caused by the administration of the anesthetic—most of our patients do not know that an anesthetic has been given other than the "injection in the vein." It produces an oblivion from the time of its administration in the room and until three to twelve hours afterwards without added risk or morbidity. In fact, it is our opinion that operative and obstetrical cases so treated have a much smoother and more rapid convalescence. This is accounted for by the elimination of apprehension and induction excitement, giving a protection to the patient against psychic shock, and the usual absence of nausea, vomiting and straining after the operation. Patients are much more comfortable after its use and it reduces the postoperative requirements for morphia. Patients who have had unpleasant experiences with previous general anesthetics are pleased and enthused with the administration of the sodium amytal in the room. Its use is especially called for in nervous and apprehensive patients and those who dread the anesthetic more than the operation.

In surgery we used nitrous oxide oxygen and ethylene as a supplementary anesthetic, but when there is to be a prolonged operation, say an hour or more, and good relaxation is desired, sodium amytal-ether is in all respects our most satisfactory anesthetic. There is a noticeable absence of excitement during the early administration of the ether and less than one-fourth of the usual amount of ether is required to get a relaxation that is almost equal to a lumbar anesthesia. The breathing is regular and quiet. The respiratory rate is decreased. The pulse rate is increased. Sodium amytal reduces the blood pressure during the administration and usually it returns to normal during the operation. Ether increases the blood pressure There is usually a contraction, and frequently a fixation, of the pupils. The color of the skin is normal unless too large a dose is given. We should endeavor to get a "balanced anesthesia," giving just enough of the sodium amytal intravenously to obtain the desired preliminary hypnosis and only enough of the ether to produce relaxation. The small dose eliminates danger, gives little or no restlessness and a quicker return to consciousness. When given intravenously, its effects can be watched and the dose regulated so its administration stops immediately when the patient loses consciousness. We never give more than gm. 1. Too large a dose or too rapid injection of the solution may produce a marked fall in blood pressure and cause cessation of respiration.

It should not be given to patients in coma or shock, to those having diabetes, a respiratory infection or obstruction, low blood pressure, generalized arteriosclerosis, nor to those markedly debilitated.

We should make a careful selection of the cases for its use and it is necessary to realize its limitations. It is another choice for the anesthetist and the surgeon to aid them in fitting the individual requirements of a given patient.

The surgical patient is told of the use and hypnotic effect of sdoium amytal when it is to be given intravenously. One hour before operation, atropine sulphate gr. 1/150 to gr. 1/100 is given hypodermically to lessen the secretions in the respiratory tract; this is important. If the blood pressure is low, half an hour later, ephedrine sulphate, gr. ¾ or gr. 1, is given hypodermically. The sodi-

um amytal should be given in the patient's room, with quiet surroundings and the usual precautions of a general anesthetic. The injection of sodium amytal should always be made very slowly and it is very important to observe the patient very closely during the injection and to stop as soon as the patient is asleep. The hypnotic dose should do nothing more than produce a quiet, peaceful sleep. The patient should never be left alone, after its administration, until complete consciousness is restored. While in the unconscious states, the patient may attempt to get out of bed. The most serious and urgent danger is from a relaxation of the jaw, the tongue falling back and producing respiratory obstruction.

Complications following the administration of sodium amytal are: Slow and shallow breathing, delirium, restlessness, edema of the lungs, atelectasis and pneumonia. To avoid these, ventilate the lungs with a mixture of carbon dioxide 10 per cent and oxygen 90 per cent before the patient leaves the operating room and repeat several times after returning to bed. Ephedrine sulphate, gr. ¾ to gr. 1, is to be given if necessary to restore the blood pressure. Patients should be allowed to become restless and breathe deeply before morphia is given. Do not allow postoperative patients to remain in one position too long.

Sodium amytal administered by mouth or rectum, as a preliminary medication prior to the use of a local or spinal anesthetic, puts the patient in a quiet state, free from anxiety and cooperative in the operating room and reduces the toxicity of the anesthetic. It is especially advantageous with spinal anesthesia. The patient rarely manifests any symptoms or vasomotor depression, so frequently seen without its use. Sodium amytal, gr. 6 to gr. 9, is given by mouth or gr. 12 to gr. 15 by rectum, 60 to 90 minutes before the patient is taken to the operating room. These patients have but a vague memory of the operating day occurrences and their convalescence is smoother and is apt to be somewhat shortened.

Our results in over one hundred obstetrical cases in which sodium amytal was used, were very satisfactory. Our aim was to abolish the pain of labor and also the remembrance of it, and this was obtained to a marked degree. Sedatives, as a rule, tend to prolong labor, rather than to shorten it, by diminishing the expulsive forces of the uterine contractions. This adds to the risks of labor for the mother, but more especially for the child. We must, therefore, have a thorough knowledge of the action of sedative drugs and employ only those which give the maximum of relief with the minimum of danger. The problem is intensified by the fact that childbirth differs from a surgical operation. Much depends on the temperament of the patient, her environment, and her uterine contractions. The process of labor is prolonged in comparison with surgical conditions and two lives have to be considered. Some women have little or no suffering, while others under the same obstetrical conditions suffer acutely. Each case must be treated individually, and experience and caution are necessary. However, with the use of sodium amytal, labor is apparently shortened, owing to the great relaxation obtained in the perineum, and the risks to the child are practically nil.

Charles M. Boucek and Arthur D. Renton, of Pittsburgh, have just recently published a very interesting article dealing with the effect of sodium amytal on the fetus. Their experiments showed that, in the white rat, sodium amytal passes through the placenta more readily in one direction than in the other. They state that sodium amytal passes with difficulty or perhaps not at all from mother to fetus, yet readily passes from fetus to mother. This experiment explains why these babies show no signs of hypnosis and cry immediately after they are born.

In obstetrics, we use both the capsules by mouth and the aqueous solution intravenously. In the first stage of labor, as soon as it becomes well established and the patient is conscious of the discomfort of the uterine contractions, the cervix is partially effaced and about two centimeters dilatation, we give the patient a capsule containing six grains of sodium amytal. This is enough to produce a hypnotic effect and the patient sleeps between her pains. The effect of the sodium amytal is pretty well gone by the time the cervix has dilated to five to eight centimeters and at this time, if she shows signs of returning consciousness, she is given the 10 per cent solution intravenously. This is made by dissolving one gram of sodium amytal in 10 c.c. of distilled water. Before administering the sodium amytal, the patient's blood pressure is taken and if it is below one hundred millimeters of mercury, she is given an ampoule of ephedrine. The sodium amytal is administered very slowly, not more than 1 c.c. per minute and it is very interesting to watch the reaction. After the administration of 1 to 2 c.c., the patient may smile slightly and say that the effect is a pleasant sensation. Then after 3 or 4 c.c., she yawns quite vigorously and usually is sound asleep by the time she has had 5 to

6 c.c of the solution. There is no set dosage for the individual. Each patient is a law unto herself. One would be sound asleep with 3 or 4 c.c. and another would take 8 or 9 c.c. The size or age of the patient did not influence the dose, as some large robust women took less sodium amytal to produce hypnosis than a small thin individual.

The fetal heart tones were unaffected and a large dose had no more effect than a small one. This coincides also with the result of the experiment on rats, by Boucek and Renton of Pittsburgh.

In multipara the average length of time, from the intravenous injection of sodium amytal until the delivery, was about one hour and in primipara the average length of time was about two to two and one-half hours. In multiparas, we rarely ever had to give any ether, but in primiparas, if the delivery was not effected in two and one-half hours after the intravenous administration, it was necessary to supplement the sodium amytal with a small amount of ether by inhalation just as the head was passing through the vulva. However, in the vast majority of the cases, no other anesthetic was necessary. The patients sleep soundly for several hours after going back to their room and upon awakening have no recollection whatever of what has transpired and all are very enthusiastic about the effect produced.

In a few cases some restlessness occurred with the pains and many of them wanted to turn on their side. Those who were at all restless were restrained with a sheet. In the expulsive stage it was necessary to restrain the hands to prevent their soiling the sterile drapings.

There was no delay in the expulsion of the placenta, as all patients were given 1 c.c. of pituitrin immediately after the birth of the baby. There was no increase in postpartum bleeding and afterpains were only slightly complained of.

Of the whole series I was fortunate enough to have no loss of mother or child. The morbidity was no more than one ordinarily has when practising obstetrics and, taking them all in all, their convalescence was quite satisfactory.

CONCLUSIONS

In the selection of an anesthetic the patient should be given first consideration. The individual requirement of the patient should be studied before time for operation.

The preliminary administration of sodium amytal in the patient's room prior to the use of inhalation, local and spinal anesthetics, rids him of the apprehension, excitement and worry incident to going to and being in the operating room and the discomforts caused by administration of an anesthetic, thereby eliminating psychic shock.

Intravenous sodium amytal-inhalation ether is in all respects our most satisfactory anesthetic in selected cases for prolonged operations. They must be administered cautiously and the patient watched closely until full consciousness is restored.

Sodium amytal by mouth or rectum is indicated as a preliminary medication prior to the use of local or spinal anesthetic to quiet the patient and counteract the toxicity of the anesthetic.

Ventilation of the lungs with a mixture of carbon dioxide 10 per cent and oxygen 90 per cent, before the patient leaves the operating room and repeated several times after returning to bed, is a most important procedure after all major operations, as a prophylaxis against lung complications.

The cautious use of sodium amytal is indicated in obstetrical practice.

It abolishes all remembrance of labor pain and does not delay labor but, on the contrary, seems to hasten it by the complete relaxation obtained in the cervix and perineum.

When given to the mother, the effect on the fetus is apparently negative—the fetal heart tones are unaffected and the baby shows no signs of hypnosis, but breathes and cries normally, shortly after birth.

DISCUSSION

(Of papers of Drs. Burger, Kimball, Palmer and Fournier.)

DR. C. E. YOUNT (Prescott, Ariz.): In the "Transactions of the Arizona Medical Association," reporting the Thirteenth Annual Session, held at Prescott, June 1-2, 1905, you will find my report on "Spinal Anesthesia." At that time we stated, "It is not our intention to burden you with an extensive review of the history of this method of surgical anesthesia, but as our report is to show something in the way of evolution of this method and its steadily improving technic, we may be pardoned for a little historical retrospection," so, after a quarter of a century, I should like to discuss Dr. Kimball's paper in historical retrospect, again recording in our proceedings my personal experience with this form of anesthesia.

"My first experience with this method of analgesia occurred in November, 1900, at the Columbia Hospital for Women, Washington, D. C., as a result, so to speak, of the enthusiasm gathered from the French accouchers who were employing it with success to relieve the pain of child-birth. The technic then employed was as follows: A glass syringe of thirty minims capacity with glass piston, capable of rapid and thorough sterilization; a slender needle about one mm. diameter, point long and sharp, (common salt solution needle); one-quarter grain cocaine tablets; sterile water heated to boiling, into which the cocaine tablet was dropped and boiled for a minute to sterilize the cocaine; this solution drawn into the syringe, which had been previously sterilized."

My experience at this time was limited to five cases. "In summarizing the results in these cases,

we noted that only in three was the subarachnoid space entered and in these the headaches supervened in two cases and were of extreme severity, morphine alone relieving. The twitching of the muscles of the face and the throwing of the head from side to side pointed to profound centric disturbance and warranted the discontinuance of the method in obstetric work until some improved technic should be evolved."

"In April, 1904, Dr. A. W. Morton, of San Francisco, demonstrated before the Arizona Medical Association the efficiency and apparent harmlessness of what we consider a decidedly improved technic.

"The two new distinguishing features of this method are, first, that the cerebrospinal fluid serves as the solvent for the tropacocaine, thereby reducing to a minimum the danger of infection and avoiding increased intra-cranial and spinal pressure, as so often resulted in the old method when cocaine was dissolved in a foreign solvent, its injection being followed by a train of unpleasant symptoms, viz., prolonged headaches, nausea, muscular twitchings, and toxic symptoms.

"Tropococaine hydrochlorate of reliable manufacture is employed because it possesses less toxic properties than coccaine hydrochlorate. The absence of this toxicity, however, is found to be in proportion to its lessened analgesic power. Cocaine hydrochlorate possessing greater analgetic strength, is more toxic, hence, its use in smaller doses, but it is more often the choice where operations are done above the umbilicus.

"R. Klapp, Germany, in his experiments upon dogs, found that cocaine in an oily vehicle was capable of securing total anesthesia without toxicity, but we have no personal experience with this mehtod, tropococaine being the safer in our judgment.

"The tropococaine hydrochlorate is sterilized by placing the dose, grain three-fourths to grain one, in small glass tubes previously drawn out in the flame and sealed at one end, the other end being treated in the same manner after the tube is loaded. Care must be taken to have the tubes long enough, say three inches, so that sealing the open end will not subject the tropococaine to excessive heat. A file mark is then made a little beyond the middle of the tube to facilitate breaking same when wanted for injection. It has been our custom to load a number of tubes at one time, but to sterilize just before use, as it is not improbable that an old sterilized product loses its analgetic properties and develops toxic qualities. (See Archives de Medicine et de Pharmacie Militaires—Dr. T. Caccia, translation by First Lieut. Sam'l. S. De Effre, assistant surgeon U. S. Army, in the Journal of the Association of Military Surgeons, June, 1905).

"We have tried numerous methods of sterilization, one, that of keeping the tubes at 232 degrees C. for one-half hour, having been found deleterious to the analgetic properties of the tropococaine, and we believe responsible for partial results in some of our cases. We now place the tubes in boiling water for five minutes, and this has not been observed to impair analgesia nor has there been any manifestation of toxic or septic effects. This really means sterilizing at a temperature of boiling water (a little less than 100 degrees C. in this altitude, plus the bactericidal effect of compressed air)."

At that time Captain Henry D. Thomason, M. C., U. S. Army, and I reported seventy-two cases operated by the Morton technic.

I should like to quote our notes on Case 1 of this my second, series, because it gives the Yavapai County Hospital credit for our first operation; "Case 1-P. B., white, male, age 59; occupation, miner. Diagnosis, urethral fistula membranous portion, result of urethral stricture. Operation; external urethrotomy, May 2, 1904. Tropococaine, grain one-half, spinal injection, third and fourth lumbar interspace. Analgesia complete in 10 minutes. Operation lasted one hour and ten minutes and absolutely painless. This was performed in the county hospital, which at that time possessed but primitive equipment. Patient held basins, trays, and so forth, and talked and laughed during procedure."

From our limited experience we were not in a position to make authoritative deductions but presented several "conclusions," one of which was: "Operations can safely be performed upon a class of cases in which general anethestics are contra-indicated."

Because of the great difficulty in preparing the glass tubes and keeping an adequate supply of tropococaine on hand, together with the skeptical attitude of my confreres, I used the method but infrequently. After the World war we gave consideration to methods of anesthesia calculated to lessen the risk in surgery in tuberculars. The Gwathmey, ether-oil colonic, anesthesia was tried and discontinued. Local and regional anesthesia were used where possible, with or without nitrous oxide. Spinal anesthesia, using novocaine instead of tropococaien, was revived and we are employing it today in selected cases. Our operations would exceed 350, the last "selected case" being eclampsia, in which it was the anesthetic of "choice." The patient had a preoperative blood pressure of 192, with increasing albumin, casts and convulsions.

However, I still feel as I expressed it before the Medical and Surgical Association of the Southwest in 1921, "When you let go of the plunger, you let go your hold upon this type of anesthesia," posture, ephedrin, and so forth, having little influence upon splanchnic shock.

It is my observation that spinal anesthesia is a real boon to humanity; its use has well-defined indications and limitations; it should not be used without a fair evaluation of both, then with meticulous care as to technic. Research—chemical, biologic and operative—is gradually contributing to its safety, but the optimum results are a goal yet to be attained.

DR. THOS. O. BURGER: I am a great enthusiast for spinal anesthesia. Out of about 600 private cases which we have done, we had three failures, all due to faulty technic in the administration of the drug. The fluid was obtained from the spinal canal, but in the interim of dissolving the novocaine the needle eye evidently slipped out of the arachnoid and permitted the novocaine to be instilled extra-arachnoid, thus accounting for the failures.

The word meticulous, when used in medicine, certainly should apply to the care in which spinal anesthesia is administered, as well as to the management and control of the patient during the time of operative procedure and the few hours following. The condition which has caused most disturbance has been the drop in the blood pressure, which is strictly a mechanical or physical proposition, on account of all the blood vessels being dilated below the anesthetized area, allowing the blood to pool without any contracting tone of the blood vessel walls. This can be avoided if the patient is immediately placed and kept in an extreme head-down position.

Some time ago we instituted the strapping of our pad to the table to prevent the slipping of the patient downward, and have made it a rule not to wait for any dressing on the puncture wound, but to put the patient's feet up at once while the patient is being turned over on his back. The foot of the table is rapidly stuck up in the air and the head down in order to catch the blood before it has

had time to get into the dilated vessels in the lower half of the body. This one fact has caused us to have at least fifty per cent less drop in blood pressure in our last hundred or two patients. And also, as a result of this procedure, we note that headaches have been very, very much less; in fact, we now hardly ever hear of a headache following our spinal anesthesias.

Spinal gives us perfect anesthesia to do any work in the abdomen if the amount of spinal fluid is withdrawn and the proper amount of solution is used. Complete anesthesia and absolute relaxation can be gotten for stomach resectioins, for gall bladders, and for any other work that does not require over an hour's time for performance, and most operations can be done within that time.

Dr. Beasley of Chicago, at a meeting in Oakland a few weeks ago, warned physicians against the use of spinal anesthesia on the grounds of producing a later degeneration of the spinal cord, and stated that experiments were being carried on by some men in Chicago with this belief in mind and would show some evidence of degeneration occurring in the dogs later on. Possibly this may be so; we have done 600 or more and we have seen no case following where there has been any suspicion whatsoever of injury or damage to the cord. And it is illogical to believe that pure novocaine crystals dissolved in spinal fluid, which are absorbed very promptly, and without touching the cord or any of its filaments, should in any way disturb the cord more than it does the tissues in other regions of the body. The illustration comparing the pain in the nerve from dental administration where the nerve is directly traumatized by the needle as it enters the bony canal, is in no way similar to this type of anesthesia, for in the dental injection the nerve itself is directly truamatized, but where it is injected into the spinal canal there should be no nerve trauma. Occasionally there may be a prick of a filament that is felt down the foot which is usually not complained of afterward. In only one instance have we had a patient complain of it following the operative procedure, and that cleared up within two weeks, and after two years' time no ill effects have been observed.

If spinal anesthesia is administered with extreme care, it is in my estimation a very safe and unquestionably a most ideal anesthesia, not only from the standpoint of the operative procedure but also for the convalescent stage. Certainly postoperative complications are less than with any inhalation method in so far as gas pains, vomiting, etc., are concerned.

Spinocaine, in my opinion, is absolutely contraindicated. I see no benefit whatsoever from its use. On the other hand, very great danger, if it is lighter than spinal fluid, and the patient should become obstreperous and sit up in an upright position. Also the foreign matter is undesirable in my humble opinion.

Nupercaine may be of value in prolonging anesthesia. However, we still feel that spinal novocaine is the more ideal and will give all the time that is necessary, for the hour that the operator requires, if given properly, and the procedure can be carried out without resorting to speed in most of our abdominal procedures.

We know that the normal adult's spinal canal holds about 10 c. c. below the danger level, and if novocaine dissolved in spinal fluid is not made to exceed that quantity, there is practically no danger of involving the nerve centers that control respiration and the heart action. Usually we give about 5 c. c. of fluid containing 150 mgs. of novocaine in the third space; sometimes the second space in instances where high abdominal operations are to be done. For anything not above the umbilicus the fourth space with 120 mgs. novocaine dissolved in not to exceed 3 c. c. of spinal fluid, will give perfect anesthesia for pelvic, appendix, and such operations, and will last, in practically all instances, longer than forty-five minutes, usually one hour.

Preliminary psychic sedatives, preferably with sodium amytal by mouth, with a dose of ephedrin in few minutes prior to coming to the surgery, will in a majority of instances make for ideal operative procedure both psychically and physically.

DR. H. R. CARSON, Phoenix: Anesthetic agents are primarily used to enable the surgeon to operate with the least amount of shock, both psychic and traumatic to the patient. All anesthetic agents used for preliminary narcosis and as relaxing anesthetics are toxic. I feel that it is less toxic to use the combination of several agents, like sodium amytal and morphine, for preliminary, and novocaine plus nitrous oxide or ethylene, and lastly ether which is most toxic (and should be eliminated where possible) for relaxing narcosis. Blood pressure readings during the operative period and immediately afterward will show the surgeon graphically on the anesthesia chart the proof of this statement and, as well, the fall in blood pressure from trauma of rough handling of tissue.

Therefore, I will recommend the addition of morphine and the use of less sodium amytal than the intravenous doses demanded to produce sleep. Two capsules of 3 gr. each of sodium amytal, one three hours, one two hours before surgery, and at one hour before operation a dose of morphine. The use of novocaine in the pertoneum for relaxation and a light nitrous oxide or ethylene gas for unconsciousness. This method has been used all winter at St. Joseph's Hospital in Phoenix without having to resort to ether for relaxation or to boost the lowered blood pressure of intravenous sodium amytal. I agree with the writers of these papers thoroughly in the desire to link psychic shock and feel that prolonged surgery with only local or spinal can be improved by the suggestion regarding preliminary narcosis in the room, and I know that the gentle handling of tissues, in which we all know Dr. Palmer has masterly technic, can eliminate the last mentioned most toxic agent,—ether.

SUCCESSFUL TREATMENT OF ECZEMA, ANGIONEUROTIC EDEMA, URTICARIA, PRURITIS, ETC., BY DIETARY REGULATION AND DIGESTANTS.

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(Read before the Fortieth Annual Meeting of the Arizona State Medical Association, held at Nogales, May 7-9, 1931.)

The purpose of this paper is to show that eczema and allied conditions may be treated successfully by dietary regulation and the use of digestants. The theory which forms the basis of the work is outlined in order better to present the principles of treatment. Twelve typical cases are briefly described.

Though the number of cases is not great, I deem it my duty to make this report; a part of dermatology is reclaimed for internal medicine.

Eczema, angioneurotic edema, urticaria, pruritis, and so forth, result from food sensitization. It also appears to me that certain cases of herpes, of acne, and even of psoriasis may have as a basis a food factor, perhaps

a sensitization. The typical manifestation of a skin lesion form of sensitization appears to be pruritis.

In order to get results with severe cases, a physician will need to have assurance and a great deal of ingenuity. Therefore my theory should be understood. Many of the observations on the vagaries of these conditions seem to fit nicely into the theory; it has helped me to know what to expect and predict under various conditions.

The theory has been discussed in previous publications; it is presented here in outline: Protein or split-protein reaches the tissues; the toxic portion of the molecule is liberated; it is produced faster than destroyed; therefore, it irritates and inflames the skin or another tissue of the body. An oversupply of split-protein in the tissues results from too free a supply by way of the alimentary canal, or from too slow a destruction in the tissues, or both.

The supply of split-protein is from inadequate digestion, overloading of normal digestion, or too rapid absorption from the alimentary canal, or all three. The cause of too slow a destruction can only be due to the lack of certain enzymes or antibodies.

The causes, direct and indirect, of inadequate digestion are numerous and need to be analyzed for each individual case. The outstanding factors are: Absent or low gastric acidity (common in sensitization cases), perhaps diminished pepsin, inadequate pancreatic digestion, too rapid eating, poor mastication, uncooked or poorly cooked food, eating when nervous or excessively tired, and focal infection of nose, pharynx, teeth, gallbladder, appendix, and so forth. Overtaxing of the digestion comes from overeating of food in general or of any one food—too much at one time or too frequently.

The foods to which one is most likely to be sensitized, experience leads to to conclude, are those which are most difficult of digestion — uncooked foods for example — and which have been the most contacted, especially when digestion is at low ebb. Therefore, it is usually the food of which a person is the most fond which will be found to be the chief offender. Dr. T. A. Glenn called my attention to the tendency to develop sensitizations to a food or foods on which one is fed during protracted illness.

Multiple sensitization is the rule. There is usually one food or a few foods to which one is highly sensitized and many to which he is slightly sensitized. It is for this reason that elimination of reacting foods is difficult.

My scheme of treatment of a case of skin pathology, suspected of being due to food sensitization, is commonly as follows: Such of the principles given above as seem to apply to his case are carefully explained to the patient. He is then given a typed sheet of diet instructions.

The one I now use reads as follows:

1. Number of calories recommended..... The intake of food must be reduced to a minimum.
2. Have a wide variety of food stuffs for each day and vary them from day to day.
3. Have all foods—even lettuce, celery, and so forth—cooked; except citrus fruits, which should be taken as strained juice. Boiled foods are preferable to fried.
4. For severe cases, vegetables should be pureed.
5. Use no pepper nor other condiments.
6. Vegetable soups are highly recommended.
7. Cheeses are thought usually to be excellent substitutes for meats and eggs.
8. Eat three meals daily, one about same quantity as another.
9. Have meals at regular hours.
10. Never over-eat.
11. Eat slowly and masticate thoroughly; keep teeth in good repair.
12. Make it a practice to take small bites only.
13. When tired or nervous rest one-half hour before dining.
14. Keep an accurate diary of foods eaten and of symptoms.
15. All foods suspected of increasing symptoms should be omitted from the diet for one or more months.
16. All foods which have heretofore been favroite articles of diet, and wheat, onions, chocolate, lettuce, celery, tomatoes, bananas, and cabbage, should be specially studied to determine if they cause an increase of symptoms.

In addition, citric acid, 20 to 30 grains, is prescribed in a full glass of water to be sipped with each meal or piecemeal. Phosphoric, hydrochloric, or acetic acids may be used in place of citric.

The patient is instructed to report every few days, with a diary of the foods he has eaten and of his symptoms. If his improvement is not sufficiently rapid, those foods which are suspected of being the most likely causes of his trouble are eliminated. In case of still no improvement, other foods are eliminated and perhaps those first eliminated are allowed. The dosage of citric acid may be doubled to see if more acid is beneficial. Pancreatin with or without acid may be tried. The possibility that citric acid might aggravate his trouble is kept in mind; and on the slightest suspicion dilute phosphoric acid usually is substituted for it.

The food-addition method, described several years ago, is occasionally most helpful. A food must be found to be started with which has no bad effects. Buttermilk is often satisfactory. After a few days other easily digested foods are added, one at a time. Each is studied for its effects. Those causing trouble are eliminated.

Those who do not get complete relief from the procedures outlined are tested for their

reactions to the individual proteins. Foods which produce definite skin reactions, or which by the diary are definitely proved to cause trouble, are eliminated from the diet for at least four to six weeks. They are then allowed occasionally in small amounts. If they cause trouble they are again eliminated for another four to six weeks. Such reacting foods should never again be eaten in large amounts. The same should, however, be said of any food.

The early cases of food sensitization respond ordinarily with astonishing promptness to this plan of treatment. Those of longer standing clear up slowly and must have their treatment followed up with great strictness over a long period of time, often for several months; foci of infection, especially in severe cases, should be removed—with caution.

Skin lesions are often complicated by bacterial infection, which should have appropriate treatment. Then, too, food sensitization may follow the use of antiseptics upon the skin. A too liberal use of antiseptics for skin lesions is to be guarded against. The patience and ingenuity of both the patient and physician will be sorely taxed with many of the severe cases.

Case No. 1 was a two-year-old child with a mild spotty eczematous rash, nearly general over the body, which had endured for about four months, in spite of careful treatment. The family physician had realized that food was the etiologic factor and had changed the diet in various ways, without benefit. Citric acid was prescribed to be taken in water with all food. A complete recovery was made in the course of a week, and a few days later the acid was discontinued. The result in this case was unusually prompt and satisfactory. The child, however, has occasionally had slight relapses and should be given acid whenever it has colds or conditions which might lead to digestive deficiency.

Case No. 2 is an adult female, who scratched her elbow; an infection developed; antiseptics were applied; the infection soon was cured, but a pruritic weeping lesion appeared and gradually spread up and down the arm from the elbow. After several weeks of treatment, it was still gradually spreading. The arms and upper chest developed large areas of weeping eczema, in spite of treatment. She was given the sheet of diet instructions and citric acid. After two to three days, the improvement being slight, the dosage of citric acid was doubled. Improvement was not satisfactory after another two to three days, and she was put upon a buttermilk diet, with about 20 grains of citric acid to each glass. Recovery was rapid and, after two days of buttermilk alone, she increased her diet—first with soups, then gruels, well cooked vegetables, fruits and other articles in turn, which it was thought would be easy for her digestion to handle. After two weeks she was well and was on a normal diet, but continuing the acid. An inference in this patient was that the antiseptic helped in some way to precipitate the eczema. The value of the food-addition method is displayed in this history. .

Case No. 3 is another person in whom a liberal use of antiseptic seemed to be responsible for a food sensitization manifestation. A mild infection, probably staphylococcic, invaded the beard of a man who had been subject to pruritis and, rarely, urticaria, of the hands, and pruritis and eczema of the anus. Following the use of an ammoniated mercury ointment on the neck, urticaria of this region developed. Careful diet and the use of citric acid promptly cleared up the urticaria of the neck and controlled the pruritis of the hands. The use of cod liver oil and malt has been decidedly beneficial to the pruritis of the anus. Pancreatin was repeatedly tried for the pruritis of the anus, wtihout apparent benefit. This man has repeatedly observed that eating hurriedly, or when too tired or nervous, may cause a slight amount of pruritis even though citric acid is taken.

Case No. 4, previously reported, is mentioned briefly to emphasize that the use of a digestant may not always be necessary, but nevertheless is usually helpful. A dentist, for three yeas, in spite of all sorts of treatment, had had an eczema of a dry, scaly type, on his left index finger. By means of the skin tests, the causes of his trouble were eliminated so that he was soon completely recovered. It was not long, however, before there was a slight return of the trouble, probably because he was not sufficiently strict with his diet. About that time, the idea of digestants as an important aid in such cases had been developed. He was given hydrochloric acid and promptly recovered and has remained well to date, a period of about four years. He then remembered that he had had eczema as a boy and that his country physician, on being consulted thereover, prescribed hydrochloric acid for him. He went for years with no trouble. The physician said that he thought the trouble was from the stomach. This patient takes acid occasionally whenever he is not feeling well, especially if he has the least pruritis.

Case No. 5 has had eczema of the hands for three years. She finally, after months of spasmodically following the regime above outlined, reached a normal condition. Then came a cold and a relapse. The bacterial poisons from the upper respiratory tract reached the stomach, it seems, with a depressing effect upon the digestion. The split-proteins as a consequence accumulated in the blood and caused a return of the eczema. The bacterial proteins possibly may have a direct part in the pathology of eczema. We are endeavoring to get her well of antrum infection. Her hands are clear now. She has been instructed to double her dosage of acid with her next cold and to decrease the amount of her food. She has found that she cannot even handle a number of foods, among which are oranges, potatoes and tomatoes. As she is a woman of high intelligence, she will learn to keep herself practically, if not entirely, well.

Case No. 6 is a woman with dry scaly eczema of 11 years' duration. Regulation of her diet and the use of citric acid effected a cure of her condition in about two weeks' time. She has noticed that raw lettuce aggravates her condition, whereas cooked lettuce does not.

Case No. 7, previously reported, was a case of extremely severe eczema covering the entire body. He had every possible sort of treatment for nine months and steadily grew worse. By skin tests, careful diet regulation, much scolding, and many admonitions, he finally completely recovered. It is certain the use of acid would have made his cure much easier.

Case No. 8, with weeping eczema and angioneurotic edema, began in October of 1929, with small pruritic areas on the dorsum of the feet, which changed rapidly into weeping eczema. The condition spread until the legs, thighs, trunk up to the waist, the arms, the ears and the face were involved. The itching became intolerable. Enormous angioneurotic edema areas with large blebs, developed on the legs, which were nearly double normal size. Many of the areas became seriously infected. In addition he had asthma, nasal infection and polypi. Job's was relatively a life of supreme happiness. He had the advantage of expert and nervous treatments, all of which were of little or no effect. He even had three x-ray treatments of the entire body with good result he thinks only upon the ankles. The remainder of the body was not benefited. He had made improvement due, he thinks, entirely to his own efforts at dieting himself. At the time I was first consulted there was no marked swelling except of the face; the arms and legs were raw surfaces; one side of the face was so swollen that he had no vision of that eye. Diet regulation and phosphoric acid have been persisted in for four months and, except for slight pruritis and slight thickening of the skin in a few areas, he is well. Citric acid seemed to aggravate his symptoms and for this reason phosphoric has been used. His asthma has been improved at times—but slightly as compared with the skin lesions. We have worked constantly upon his nose. Polypi have been removed and the antra and other sinuses have had constant treatment. The use of bile salts in this patient seemed to do definite good. The bile salts were in combination with mild laxatives. Just what produced the good we have not determined. He is now practically well after four months' treatment.

Case No. 9 was a woman with general urticaria of four weeks' duration. She was given citric acid and general principles regarding diet. It required three to four weeks of diet changes and continuation of acid to cure the urticaria. She has had no return in over two years.

Case No. 10 was a man with a giant urticaria of a year's duration. Three times he had been temporarily cured through dietary regulation. Each cure was followed in a few weeks by a relapse. The lesson to be learned from these relapses was that he continued on the diet on which he had obtained relief. By continuing too long on any article or artciles of food, one's blood may become filled, it seems, with the split-proteins of those foods. His diet was changed, giving him as wide a variety as possible at the time, citric acid was prescribed and in a remarkably short time, about 10 days, he was well and has continued well ever since—now six months; as he understands the principles involved he should have no serious trouble in the future.

Case No. 11 had angioneurotic edema of the hands, arms, and feet. It was of but a few days' duration when first seen. Regulation of the diet, coupled with the administration of acid, effected a cure in about one week. He has had no return.

Case No. 12 had pruritis and eczema of the vulvae and vagina for eight months. The food-addition method and the acid afforded prompt relief.

I have now treated 22 cases of extremely severe eczema, urticaria or angioneurotic edema. There have been a much larger number of mild cases. One case of severe eczema I saw only once in consultation. Two other cases of eczema, one of 17 and the other of 44 years' duration, though definitely improved, are not ready to be reported. The other 19 have been cured, or practically so, and give promise of permanency. This does not mean that they will not have relapses; but care to the diet and the use of digestants shou'd control the conditions.

Persons with extremely low gastric acidity will probably need to take acid with food throughout life. Others will have to take it whenever experiencing unusual stresses and strains.

CONCLUSIONS

1. Eczema, angioneurotic edema, urticaria and pruritis are commonly due to food.
2. The theory advanced is that there is deficient digestion and deficient metabolism, so that the blood becomes surcharged with split-protein products.
3. Cutting the patients off the foods of which they eat the greatest amounts, substituting foods not ordinarily eaten, having all foods exceptionally well cooked, and administering aids to digestion, usually citric acid, will cure most, if not all, of the cases, if persisted in a sufficient length of time.
4. Persons with low gastric acid may have to take acid and should be careful of their diets indefinitely; in fact, all persons should have well regulated diets.
5. The reason for using citric acid is that it is easier to take than hydrochloric acid and seems usually to serve equally as well.

DISCUSSION

DR. C. W. BROWN, (San Diego): Dr. Brown's paper is worth a great deal of consideration and in fact he has so simplified the allergic treatment by giving lactic, phosphoric or hydrochloric acid in a glass of water three times daily, that we need not worry any more about the future with these allergic conditions. However, I fear that all of these cases cannot be so treated with such excellent results as Dr. Brown has given in his case reports in this paper. Practically no allergic child is free from some nasal symptoms. One child may have a hay fever or asthma and next attack may be abdominal symptoms presenting all the symptoms of appendicitis. In my opinion many a child is operated for appendicitis when it is this hypersensitiveness to proteins.

While in a well known allergist's office some few weeks ago, his own child was given candy with some nuts in it and immediately, that is within a few hours, became ill with nausea and vomiting, swelling of the pharynx and irritation of the entire gastral tract and diarrhea. Adrenalin hypodermically and soda enemas gave immediate response, with three or four days required for the child to recover.

I feel that we must continue to test these people with the scratch and intradermal tests instead of trying to clear them all with food addition or food elimination diet and acids, as Dr. Brown has so elegantly described in his paper.

EL PASO'S HISTORY OF WEED ERADICATION RELATIVE TO HAY FEVER

MRS. J. A. RAWLINGS,
Chairman of the Weed Eradication Committee of the Women's Auxiliary to the El Paso County Medical Society,
El Paso, Texas.

Russia, the most talked-of country today, has unconsciously succeeded in putting over on our country one of its worst pests,—the tumble weed,—which is the "Russian thistle." The story goes that in a shipment of grain from Russia was a new kind of seed; some of the grain was sown in New Jersey, and there appeared the Russian thistle which grew rapidly and, like a huge ball, it has tumbled its way from the Atlantic to the Pacific. Hay-fever is everywhere prevalent as never before, due largely to this weed and many other weeds, plants, and grains, which give forth pollen; also face powder and certain foods will cause hay-fever in some people.

Two medical experts, after a survey of El Paso, said that 80 per cent of the hay-fever here could be prevented if tumble weed and pig or careless weed were eradicated, the former prevalent from May till frost, the latter from August to frost. Earlier in the season the pollen from cottonwood trees causes trouble; also pollinating Bermuda grass. The tumble weed is our worst offender in the early summer. In appearance it is very attractive; no hard prickers when small; it starts with a tap root producing tiny pointed branches, the size of the lead in a pencil and of a grey green color that deepens with age. It branches irregularly resembling the sprengenic fern; it grows to be a huge bush, three to five feet high becoming round and brown in the fall. The wind severs its tap root and it begins its tumbling journey, scattering thousands of seeds. It has been estimated that an average tumble weed matures 40,000 seeds. Think how much public health work you do when you pull one weed. Its mission is to prdouce pollen readily carried through the air, and therefore readily causing hay-fever. A disease so common, we think of it as we do a cold, but a most distressing disease producing real suffering; it causes a feeling of depression that makes life seem not worth the living. Hay-fever lessens resistance and depletes the system so that other diseases follow. Little children are among the greatest sufferers. An attack may begin early in the spring and last till frost. One often becomes totally unfit for work.

In 1924, the El Paso Herald advocated a weed eradication campaign. In March, 1927, Dr. George Turner talked before the Woman's Auxiliary of the El Paso County Medical Society on the cause of hay-fever and its menace to health. He stated that he had talked before every organization in town and had not yet succeeded in getting anything done. It was determined to do something. The newly installed president, working through her strong executive committee appointed speakers to talk before all organizations of men and women possible, explaining the need for weed eradication and the 89 members of the Woman's Auxiliary asked people in the homes to free their yards from weeds and to clean vacant property. The response was gratifying. The school children were asked to pull tumble weeds and rewards were offered. In three days 250,000 weeds had to be paid for and we were forced to pay our depts with public contributions.

Mr. H. D. Slater, editor of the Herald, put on a fine publicity campaign, designating one of his best writers to the job. The result was excellent. In fact, the articles attracted the attention of our President of the Woman's Auxiliary to the State Medical Society and she had her secretary send clippings to the various medical auxiliaries in Texas. We succeeded in getting the cooperation of the El Paso County Medical Society, the Chamber of Commerce, the Board of Health, the city schools, the railroads and the many organizations of the press. Representatives from the above organizations, together with those from eighteen women's organizations were asked to meet with the City Council. Our Mayor, Mr. Thompson, saw the need for weed eradication and did all in his power. There was no budget.

The various departments cooperated. Dr. McCamant, for the El Paso County Medical Society, proposed an ordinance sponsored by Drs. Rawlings and Brown of the Board of Health to fine property owners who did not clean lots. In 1929 another ordinance was passed taxing property, and that is now in force. There was a splendid spirit of cooperation and Dr. Outlaw, City Health Officer, put through a fine piece of work.

Favored by dry weather and cleaning of tumble weeds there was very little hay-fever till August when much rain brought forth the careless or pig weed in great profusion and there was much suffering. This weed has various names and came from Europe to Canada and the United States. In 1928 the City Council budgeted twelve hundred dollars for weed eradication. In April the Woman's Auxiliary asked cooperation of the City and Health Departments to put on a short educational campaign. The city prop-

erty was pretty well cleaned in the early summer but the twelve hundred dollars did not last through the season. Those not afflicted with hay-fever did not see themselves as "their brother's keeper." In August the pig or careless weed became rampant and there was such a flood of hay-fever that there were thousands of cases; those who could left town, some not to return. The following year (1929) the budget was increased by one thousand dollars and the city offered to clean property at one dollar per lot. Many sent checks, 5,000 lots were cleaned. Real estate men and railroads cooperated.

This last year of 1930 the work was better organized with a Weed Eradication Department. The weather was dry and the combination was like preventive medicine. Few people got hay-fever. As usual, the rains brought forth the pig or careless weeds and they were cut. For the first time the city had the appearance of being cared for, though not half of the lots were free from weeds. Example has been a strong influence in homes. A lady said she was the first to clean her place of weeds; the next year two did likewise and now the whole block is beautifully kept. We are proud of the last year's report; over 10,000 lots were cleaned. It shows fine cooperation and work. To Dr. Outlaw great credit is due. The press has shown the finest spirit of helpfulness. Dr. Turner reports that since this work on weed eradication not only are there fewer cases but they have been less severe and where asthma was frequent it is now rare. This year promises the most luxuriant crop of hay-fever weeds ever known, already many people are afflicted. The weed eradication department is doing fine work. Notices have been sent to nearly all vacant property owners and many checks received to pay city for cleaning lots. Many people are cleaning their own property. The city has twenty-five men working every day on city property and vacant lots. A big factor now is the pollinating Bermuda grass in the yards of residences, and a notice is being distributed by the Boy Scouts, reading:

"PERSONAL NOTICE WEED ERADICATION

The Mayor of El Paso and the Board of Health, with the help of the Woman's Auxiliary to the El Paso County Medical Society, who for the past five years have stressed weed eradication and through the cooperation of the Boy Scouts of America, do hereby give notice, in accordance with an ordinance passed by The City Council on May 9, 1929, owners and occupants of real estate are required to eradicate and destroy hay-fever weeds, notably tumble, pig and careless weeds and to cut Bermuda grass often enough to prevent seeding. Good citizens do not have to be compelled to obey city ordinances. This notice is handed to you in the interest of several thousands of hay-fever sufferers in El Paso. The Health Department reports that 20% of our population suffers from hay-fever; not only adults, but children. One's efficiency is cut from 15% to 50%; sometimes totally. You can greatly aid in reducing this suffering by cooperating. If everyone occupying or owning property will attend to its need the problem is solved. Prove your loyalty to El Paso and help make your City clean and healthful."

The Mesilla Agricultural College is now experimenting by spraying weeds. We tried burning but now our faith is in the man with the hoe and the Fire Department burns the pile. The Woman's Auxiliary has a standing committee of fifteen to assist in every way possible with this work. Recently a talk was given over the radio by a member. This is a big problem but much progress has been made, and this year promises greater cooperation.

Some citizens are making contributions to poppy seed. The Garden Club and Woman's Department of the Chamber of Commerce are planning to beautify the vacant lots. Just as a home, by its cleanliness and beauty reflects the character and ideals of those who live there, so a city by its cleanliness and beauty reflects the characteristics and ideals of its citizens. We hope in time to have the most beautiful and cleanest city in the Southwest.

A CASE OF AN ACUTE DESTRUCTIVE PROCESS OF THE LIVER OF UNKNOWN ORIGIN

S. H. NEWMAN, M.D.,
El Paso, Texas.

(Presented at El Paso City-County Hospital Staff Meeting.)

M. R. A., Mexican girl, age 3 yrs., 7 mos.; born full-term pregnancy, normal delivery, weight at birth 6¾ lbs. Threeolder children and one younger living (ages: 9 yrs., 7 yrs., 5 yrs., 10 mos.). One child dead. This last was the first born and died at age 15 mos. of summer diarrhea. Mother has had no miscarriages and both parents and all other children are apparently in best of health.

Child was nursed at the breast till 2 years of age but after the first year had been fed other things. Never seemed rachitic. Started walking at 15 months and did not start talking till past two. All the children were late in learning to talk. When 6 months old, had thrush that lasted about a week. At six months of age had measles; at eleven months whooping cough, lasting three months, for which she received eight injections of vaccine. Summer before last had a little diarrhea, lasting but a few days. Other than this, the child was never sick, always was bright and playful and always had a good appetite. Never had snuffles nor skin eruption, and physical development seemed to be normal in every respect. However, child was a dirt eater, eating plaster off the wall or dirt off the floor and sidewalk—having no particular preference as to kind. Never had any swelling of limbs or body and no nervous disorders were ever noticed. Sleep was always peaceful. Three months ago she had a severe scare caused by a dog jumping on her, became very pale and almost collapsed, but in a few hours all this seemed to have passed away and she

was again about her play. Bowels were always regular.

The mother, who seems to be a fairly intelligent woman, insists that the child was perfectly normal up to nine days before her death; also, that during her illness she had no fever. She first noticed that something was the matter with her on March 5th,—child seemed to tire easily, playing a little and then coming in to lie down. This seemed rather unusual, as she had always been full of energy and never seemed to know when to quit playing. It was also noticed now for the first time that her eyes were a little jaundiced. But, as she seemed to have a good appetite and her bowels were normal, and as she did not complain, the mother did not think very much of it. The next two days she acted about the same. On the night of the third day, however, her abdomen became very distended and child seemed in misery, thrashing around and jumping out of bed and crying out, but not seeming to be in pain. Was given a laxative which acted well, and she got easier, Next day she was up and playing about as usual, tiring easily, though, as on the previous day. That night (Sunday) her abdomen again became distended, and she acted as she had on the night before. She improved with castor oil and an enema. That morning, however, and the one following, she complained of nausea, and vomited several times. After this she never vomited any more. On the 9th, 10th and 11th, she was up at her play, tiring easily as before, but having no trouble at night with her abdomen. On the night of the 11th she again became distended and complained for the first time of pain (epigastric). She refused food and begged for much water. Was seen by a doctor who prescribed calomel. She tossed about all that night, till 4 o'clock in the morning, when she went into a coma and remained in it till she died, approximately 24 hours later. During these intervening days, her mother states that she had no fever, that her skin had become moderately jaundiced, that her stools were constipated, bowels moving only with enemata or laxatives, and that her urine was very highly colored.

I saw her for the first time about eight hours after she had lapsed into a coma. By pressing deeply in the epigastrium, she was caused to arouse a little, as if that caused her pain. Knee reflexes were present but sluggish. Had partial ankle clonus. No Babinski, no Kernig, and no neck rigdiity, was present. Superficial abdominal reflexes were unobtainable. No eye phenomena were present (pupils partially contracted and responded to light sluggishly). Two or three ecchymotic spots half an inch in diameter were noted over both shins. Abdomen was moderately distended but soft. Could not obtain liver area dulness. There did not seem to be enough distention to account for this. There were many rales in both lungs, indicating a beginning bronchopneumonia. Spleen, just palpable. Rectal temperature was 98; pulse, 140; respiration, 34. General appearance was that of a well-nourished child. Skin and sclera were distinctly, but not deeply jaundiced.

Sent her to the City-County Hospital with a diagnosis of jaundice with coma—type and cause undetermined. At the hospital she was examined by Drs. Barrett, Black, Safford, Rennick, Cummins, and the internes, all of whom were at a loss to account for her condition and all of whom seemed to agree on the marked diminution of liver area dulness. Blood count and differential were normal, urinalysis negative except for the presence of bile pigment. spinal fluid was not under pressure and was reported negative with a negative Wassermann first, but later (after several days) the technician stated that there had been a mix-up in the Wassermann and that this spinal fluid was 3 plus positive. A blood Wassermann and blood culture, unfortunately, were not made. However, a test of both parents made later showed a negative blood Wassermann. Other tests such as search for leucin and tyrosin crystals in the urine, and so forth, were not made, due to the short stay in the hospital. Eye grounds were normal. Her temperature remained around 98.6. She died the following morning at 3 o'clock, having been bed-ridden less than 36 hours.

The diagnoses considered were congenital anomaly of the biliary passages, drug intoxication, malignancy, and catarrhal jaundice which had overstepped its mark and passed into the stage of acute yellow atrophy. Congenital anomaly we thought unlikely on account of age and absence of previous attacks. Malignancy, while possible so acute, we thought unlikely, because we should expect a large liver, other signs, and so forth. Drug intoxication could be eliminated only by a careful history, but even then we were not certain that the child had not picked up something from the floor or street and eaten it without its mother's knowledge. The mother denied that the child had been taking medicines of any kind. Banti's disease and Gaucher's were easily ruled out on account of age, short course, no previous history of illness, absence of liver dullness, and apparently but moderately enlarged spleen. Cirrhosis was not considered on account of the history of a very short course, the absence of previous digestive upsets, and the absence of ascites. Syphilis, other than cirrhosis, would probably take the form of a gumma, and a gumma, we thought, should give us an increased area of liver dulness rather than absence. The three things against acute yellow atrophy were, first, its rarity, especially in children; second, the absence of intense vomiting and delirium; and, third, the fact that the jaundice was of only a moderate degree.

However, we were not hide-bound in our belief that the liver was greatly atrophied simply because its area of dulness was diminished or absent. We bore in mind the possibility of its being obscured through intestinal distention—being rotated on its axis away from the wall.

We were inclined to think that acute yellow atrophy was the nearest approach to the true diagnosis of all the possibilities considered, although it was not a clear-cut picture of atrophy.

At the autopsy, performed by Dr. Willis W. Waite, all the tissues were found intensely jaundiced, much more so than the condition of the skin would indicate. A terminal bronchopneumonia was found in the lungs. Intense ecchymoses were present in the mediastinum, epicardium, and serous surfaces of the abdomen. The spleen presented no marked gross changes. The liver was yellow, somewhat smaller than normal, hard, and not of a wrinkled appearance. However, the body had been embalmed 10 to 12 hours, which may have had something to do with the hardening. On sectioning, the liver presented a washed-out appearance, studded with numerous bright yellow nodules, size of a pea, that protruded from the cut surface. The kidneys were apparently normal. The rest of the findings were negative. The skull was not opened.

Dr. Waite's diagnosis, after microscopic study, was acute cirrhosis (non-syphilitic).

Through the courtesy of Dr. J. Mott Rawlings, a portion of the liver along with a history of the case was sent to Dr. W. G. MacCallum of Johns Hopkins. Also through the courtesy of Dr. W. A. Guynes, a similar portion and history were sent to Drs. Duval, Lanford, and Lawson, of Tulane. Their replies, though at variance, were extremely interesting and instructive. I wish to take this occasion to express my appreciation to them for their kindness in taking the time to study the specimens and giving us their opinions.

Dr. Lawson wrote, "Such a marked cirrhosis is

seldom seen, especially in a child, and in a patient with symptoms of such short duration. We are all of the opinion that such a marked proliferation of connective tissue, causing the increase in number of the bileducts, with the perivascular lymphocytic infiltration, the small amount of irregularly arranged and degenerated liver tissue, and the areas of necrosis, could best be explained by a diagnosis of congenital syphilis. This opinion is substantiated by MacCallum in his Text-book on Pathology, which gives an identical illustration of the lesion presented. It might interest you to know that we are using the tissue to obtain a set of slides to illustrate the condition for the Sophomore class in Pathology."

Dr. MacCallum wrote, "The liver shows the most extreme destruction I ever saw. It is not, however, a perfectly acute process. The masses of recognizable liver tissue that remain, and show as yellow or green nodules, are almost entirely necrotic, but the intervening tissue, which is so collapsed and which does not show any liver cells, does contain great numbers of bile ducts, which must have grown after the destruction and absorption of the liver tissue from those areas. Of course, some bringing together of original bile ducts might occur, but these look pretty new, as though sprouting, and might contain mitotic figures as they did in the case I reported in the J. H. H. Reports many years ago.

"Certainly some violent destruction must have occurred sometime before the child's death. It resembles the effects of salvarsan but you give no history of that. We have had many cases in which the exact nature of the poison could not be learned and call them vaguely acute yellow atrophy. It is a confession of ignorance. I think it may perhaps be caused by some violent infection but prefer to believe it an intoxication. Is it possible that some poor gin or whiskey fell within reach of the child?"

Dr. MacCallum's report was in the form of a personal communication to Dr. Rawlings, as was Dr Lawson's to Dr. Guynes.

This case was of particular interest as it was similar in a great many respects to a case reported by me as acute yellow atrophy in 1928 in Southwestern Medicine.*

* Newman, S. H.: A Probable Case of Acute Yellow Atrophy, Southwestern Medicine, Vol. XII., Page 95, March, 1928.

THE MEETING OF THE AMERICAN COLLEGE OF PHYSICIANS BALTIMORE — March 23-27

M. K. WYLDER, M.D., F.A.C.P.
Albuquerque, N. M.

(Report read to the Bernalillo County Medical Society at Albuquerque, N. M.)

(Continued from May Issue)

Dr. Charles Armstrong, Surgeon U.S.P. H.S., Washington, D. C., discussed "Post-Vaccination Encephalitis." He stated the exact nature of this encephalitis is unknown. About 44 cases have been reported and about 77 cases of post vaccinal tetanus. They don't know why the cases occur, nor how to prevent it and said some of the cases may be coincidental.

Dr. William S. McCann, of Rochester, New York, discussed "The Many-Sided Question of Protein in Nephritis." Protein has been withheld from patients to the point of producing nutritional edema. Many think the only way to reduce the albumin in the urine is to withhold protein from the patient. If the patient does not get protein in his food, he will rob it from his tissue. The nitrogen balance must be enough to equal the needs. With acute fever, toxic destruction of protein is great. If we reduce the salt and increase the water, urine quantity may clear up the urea. Urinray globulin reduces the amount in the blood and this must be replaced by food or the body tissue will be consumed. Hematuria may be diminished. Albuminuria may be increased. Regeneration is shortest when on a meat diet in nephrosis. Patients retain nitrogen; only a small portion is in the blood, the other is held in the tissues and causes edema. The kidneys play an important part in the maintenance of an acid base balance. Failure of this fucntion increases the amount of acid in the urine. Protein destroyed makes a great difference. Liver in sufficient amount for blood building may injure the kidneys. The Eskimo gets 40 per cent of his energy from protein. When the kidney is injured, protein may be spared by increasing the fats and carbohydrates. Protein deposited in the tissues makes no demands on the kidneys.

Dr. Haven Emerson, New York, Professor of Public Health Administration, College of Physicians and Surgeons, Columbia University, discussed "The Influence of the Practitioner of Medicine in Guiding the Public Towards Health." He said that Public Health established itself in this country between the years of 1850 and 1900. During that time it had to do only with the control of communicable disease and that it lacked the support of authority and funds, but with the establishment of the National Tuberculosis Association they began educational work and that it has been largely through the agency of lay organizations that this work was started. In 1922 the National Health Council began advocating periodic health examinations. The first motive for these examinations was the early discovery of tuberculosis. Many people coming for an examination to see whether they are tuberculous, found that they were not but they had other troubles of which they knew nothing. He stated the influence of preventive medicine is at its best in the specialty of obstetrics and pediatrics. That much has been accomplished in prenatal care of the mother, reducing the number of stillborn babies and the amount of ill-health in the mother after labor. The pediatrist gives the greatest health service in taking care of

the well baby and in developing and keeping him well—not so much in treating disease as in preventing disease. In but few cities are there any but Jennerian vaccinations required at the present time. He stated that the health officer operated now under political supervision, insecure tenure of office and with small amount of funds. He stated that the influence of the practitioner in guiding the public to health is as yet very unevenly applied and it will not be until physicians begin to feel themselves, that health can be secured and disease prevented, instead of treated, that we will begin to get results.

Dr. Felix J. Underwood, Jackson, Miss., gave a paper on "The Proper Relations between Practicing Physicians and Health Officers." He said that the members of the medical profession have interested themselves in good government especially with relation to health. That health education was like Christian education—a real job and that the lack of information is the cause of strife. Medicine fills a public relationship and, at times, the good of the individual must be submerged to the welfare of many. He stated, even the physician is not informed as to the means of prevention; that the public health worker must educate the physician as well as the laity and that the medical profession has suffered much at the hands of bad health officers. At times there is divergence of opinion between the medical profession and health officers. Preventive medicine has taken a broader phase in recent years. The physician will make the next generation stronger, physically, than this one, if we all work together.

Dr. Winford H. Smith, Baltimore, Director of Johns Hopkins Hospital, spoke on "The Hospital—Its Relation to the Community and to the Medical Profession." He stated that the hospitals of the United States were valued at over three billion dollars and that the annual maintenance of these hospitals was over nine hundred million dollars. We are building new hospitals at the rate of about two hundred million dollars annually and the hospitals take care of over twelve million patients a year. He stated that the cost of service in many hospitals and medical care is free and that he felt the patients should pay something. That free service in dispensary and diagnostic clinics is not yet a menace. In Philadelphia 40 per cent of the hospitals were free and 35 per cent were free in New York. Forty-three per cent of the money for operating hospitals comes from outside sources and seven per cent from public funds. Many hospitals have no endowments. He stated the present system of managing hospitals is not sound. Illness is given as the cause of dependency in forty per cent of the cases cared for. The special nurse increased the cost of hospital care greatly. Out of one hundred million dollars for medical care, the physician received 27 million; nurses received 17 million; dentists received 13 million, osteopathists received 3 million, hospitals 16 million and the druggists 22 million. The need was not for more beds or doctors, but better coordination of all interested in furnishing better hospital service and medical care.

Dr. George E. Follansbee, Cleveland, Ohio, spoke on "The Profession and the Public." He said the complaints of the profession with regard to the laity were all published in the medical journals; the public's complaints with regard to services and conditions of medical practice were published in the lay press. The public did not read the medical journals and the doctors, to a large extent, did not read the lay press so that neither side really understood the complaints of the other. The great cry is, medical attention costs too much; it costs too much to raise a family. The impression is the incompetence of the general practitioner. Most people think he can only direct them to a specialist. He can no longer take care of that pathological entity—a well baby and obstetrics has been put in the class of the physiological process. Dr. Follansbee stated no man should put himself up as a specialist until he has had special courses and prepared himself for that specialty. Specialists who are not prepared will often over charge for their services and pay commissions to get patients. This is not true in small communities, but it is true in large cities. The specialist should return to the family physician, the patient referred to him as soon as his special work is done. He also stated many of the older practitioners are suffering from an inferiority complex, forgetting their experience fits them more adequately for their work than a recent graduate. However, we must provide medical care, at costs that the public is able to pay, but much of the increased cost is demanded by the public themselves as many people seek the aid of specialists when their family doctor would do them more good and that they often go to the wrong specialist and then have to go to another, thus the costs are pyramided. Specialists are now divided on a basis of anatomical fields. Much of the work that surgeons now claim could be done just as well by the general practitioner. A survey made in one large city showed 28 per cent of

the doctors were full specialists; 37 per cent part specialists, paying particular attention to a certain field and, 35 per cent were general practitioners. He said it was absolutely impossible for the public to support an army with so many generals. Too high fees or too low fees are both bad. Obstetrics is costing too much, but the mother is encouraged to believe she could not have a baby without a specialist, whereas it is difficult to see the necessity for a high-priced specialist where he can be called on the phone while nurses and an intern watch the case through all the progress and get the specialist there in time to tie the cord. The average general practitioner is trained to do a large part of the work specialists do. The diagnostic costs are too high and tests have been multiplied until we are bewildered. They all cost money and if they are necessary, they should be done but they should not be made unless necessary. The public also complains of passing patients from one doctor to another. This should only be done when it is necessary. The physician is the guardian of the patient's health and of his pocketbook and that trust should never be violated. It is up to the medical profession to get together and correct these causes of complaint so that we can go to the public with clean hands.

Charles F. Craig, Colonel U. S. Army, Washington, D. C., gave a paper entitled "Complement Fixation in the Diagnosis of Amebiasis." He stated, the idea that amebiasis was limited to the tropics has led the world astray. In 1891 Dock demonstrated that amebiasis is not a tropical disease; it is found in all parts of the world. Whether the endameba histolytica can live in the intestines without invasion of the tissue is not yet known, but we do know that it often does invade the tissues. A diagnosis by finding ameba in the stools is worthless as the endameba histolytica is the only pathogenic member of the ameba family. Complement fixation in 110 proven cases was positive in 93. This reaction will become negative after treatment in from five to sixty days. The antigen used is alcoholic extract. The technic is such that it can only be used in a laboratory where a competent protozoologist and serologist is available. It cannot be used generally as yet but he hopes to work it out so that it can be generally used. The test does not give a reaction in other conditions.

Dr. Harold L. Amoss, Durham, N. C., spoke on the "Treatment of Recurrent Erysipelas." He said relapses are not uncommon in erysipelas and at times it may look as though the erysipelas is about well when it flares up again. When this occurs, sinusitis or hemolytic infection should be suspected. He reports a case of a girl who was given serum but on the eighth day the disease flared up again. Serum was again given and streptococci found. Again she was almost well when on the twenty-seventh day it flared up again and she was given serum. In eighteen hours she had another chill and was given another injection of serum and this time she got well. Recurrent erysipelas in the leg belongs in the class of cellulitis. Another case of a patient who had erysipelas and got almost well, then came in with a relapse; he was given more serum and the swelling went down but developed cellulitis; he left the hospital in six weeks, well, but came back after three weeks with another flare-up. He developed an abscess under the middle toe. This was opened and drained and he was given another injection of serum. This time he got well and stayed well. Cases of recurrent erysipelas on the feet were usually found on patients who had an epidermophytosis on the foot and through the lesions on the foot, the streptococcus entered the tissues causing the relapses. Aside from the serum treatment, this fungus must be treated also. His method was to wash the foot twice a day with alcohol and dust with a starch made up of salicylic acid, thymol iodide, boric acid and starch. In treating both conditions he was able to get rid of the trouble.

Dr. Francis G. Blake, New Haven, Conn., discussed "Observations on Pneumococcus Type III Pneumonia." He stated, this is a coccus which lives in the mouths of many individuals and in many cases causes no harm whatever. It is a less common type of pneumonia and more fatal than other types. Type III is much more frequent in the aged. It is a winter disease and almost never occurs in the summer. In a series of cases he found 25 per cent mortality among the right sided cases; 37 per cent among those of the left side and 77 per cent among the double cases. In the short cases the fever went down by crisis; in the long cases, patients recovered by lysis. Positive blood cultures are not common in type III. Bacteriemia is rare and if it does develop, it is late. The high mortality in this type of pneumonia is due to the fact that it is more common in the old age group. The predisposing causes are acute respiratory infections, alcoholism and other chronic diseases.

Dr. Jesse L. Bollman, Rochester, Minn., discussed "Experimental Pathology of the Liver." His experiments were made on dogs in which the liver was removed. They developed hypoglycemia and died unless glucose was given. They could be kept alive

quite a while if glucose was supplied. Regeneration is prevented by contractions of cicatrical tissue which reduces the blood supply. Cirrhosis does the same thing. Can produce cirrhosis by performing cholecystenterostomy and infection travels in this manner to the liver tissue. Cirrhosis can also be produced by the introduction of chemical irritants such as carbon tetrachloride. We get no symptoms in animals until 90 per cent of the liver is destroyed, so an individual can lead practically a normal life with an enormous amount of the liver destroyed. Hepatic function tests based on carbohydrate elaboration are not dependable. Most of the tests have a definite value if all conditions are met. Most tests used depend on excretion. The dye tests are valuable; however, the last word on liver function tests has not been spoken. Ascites occurs spontaneously in animals with extensive damaged livers. Animals with damaged livers who have been fed on carbohydrates and then switched to meat will develop ascites. This will disappear by returning to a carbohydrate diet. A carbohydrate diet is essential to animals with damaged livers.

Dr. Albert M. Snell, Rochester, Minn., discussed the "Clinical Aspects of Portal Cirrhosis." He said there was a large amount of liver damaged before ascites developed. In hepatic insufficiency and portal cirrhosis, the end results are the same. Fifty per cert of cirrhotics are alcoholics but only five per cent of alcoholics are cirrhotics. Alcohol does not act directly. It may increase the permeability of the gut to the end that poisons enter more readily. In the relation of cholecystic disease and syphilis there is a relation but it is not definite. Enteric fever and parasites have an effect and also the toxemia of pregnancy. Toxic agents act for a long time more or less continuously. Successive hepatic lesions occur before ascites. The pre-ascitic stage is usually long and ascitic stage is short and is usually the finale. Duodenal ulcer is common in cases of cirrhosis. Spleen enlargement is rare. After the diagnosis is made, there is not much to do. Hernia is very frequent in cirrhotics. Blood urea and sugar are negative. Dye tests are more reliable than any other. Hemorrhage usually comes from the esophagus and prognosis is bad. He does not advise active treatment and said "Why should we trouble with strong and violent remedies those whose lives we are trying to preserve." Do not restrict fluids and give intravenuous glucose. Early diagnosis is valuable. He advises paying more attention to the liver and less to the ascites.

Dr. Balduin Lucke, Philadelphia, Pa., discussed "The Morbid Anatomy of the Diaphragm." He said that primary tumors of the diaphragm are very rare but secondary tumors very common. Carcinoma, sarcoma and tubercles are all common. Myositis may accompany erysipelas or form an extension of neighboring inflammation. These conditions are almost never diagnosed except at autopsy.

Dr. Alexius M. Forster, Colorado Springs, Colo., discussed "Heliotherapy" and had several reels of motion pictures showing his patients taking heliotherapy and showing the results of treatment. He showed cases of gland tuberculosis, bone tuberculosis, pulmonary tuberculosis, fistulae, kidney, tuberculous peritonitis and also patients taking the sun's rays by a system of mirrors drawing the sunlight into the larynx.

Dr. William Carpenter MacCarty, of Rochester, Minn., gave a paper on "Pathological Classification of Goiter and its Clinical Significance." He classified them as follows: Normal thyroid, nodular thyroid, hypertrophic thyroid, and hepertrophy due to colloid material in the acini and hypertrophy to the increased epithelium in the acini. The first type is associated with symptoms of the toxic goiter. Give iodine and the columnar type of epithelium disappears and then we get the acini filled with colloid material. Again in the nodular type the acini are separated by loose connective tissue. Some acini are normal, some large and some are small. The surrounding tissue gave the same picture as the non-nodular type. The nodular adenomatous with and with hypertrophy. We also have carcinoma, sarcoma, epithelioma and tuberculoma of the thyroid. Goiter, during the last twenty years, has increased alarmingly. Colloid goiter has not increased during the past twenty years, but all other types have.

J. P. Anderson, Cleveland, Ohio, "The Use of Quinidine Sulphate in the Treatment of Cardiac Irregularities Due to Hyperthyroidism." He said that quinidine sulphate has earned a place in the treatment of auricular fibrillation. Prognosis depends on the length of time and general condition. He begins giving quinidine sulphate three or four days after operation and gives five grains every four hours day and night. If the pulse becomes regular, he stops giving it; if irregular on the second day, give five grains every three hours and if the pulse stays irregular the following day, give it every two hours for another twenty-four hours. Most cases will clear up before the fourth day on this treatment. If the irregu-

larity of the pulse does not clear up before the fourth day, discontinue the quinidine sulphate and often the pulse will become regular after you have stopped the use of the drug. Auricular flutter is rare. Quinidine sulphate is a very useful drug and the time for its use is a few days after operation.

Dr. Frank A. Hartmen, Buffalo, N. Y., discussed the "Vital Hormone of the Adrenal Cortex." In his experiments, a cat with the adrenals removed was kept alive 268 days by the use of suprarenal extract and died when the extract was discontinued. The extract will keep cats and rats alive indefinitely after they have had the adrenals removed. A man was brought in who was comatose; he could not keep awake and cortin fixed him up. He went home well and later suffered another breakdown and again cortin made him well. This extract works best if given every six hours. In cases of asthenia after infections, especially diphtheria, cortical extract peps them up. Asthenia following scarlet fever is benefited in the same way. With the use of cortical extract you can treat and detect adrenal insufficiency.

Dr. David Preswick Barr, St. Louis, discussed "The Relation of Parathyroid Glands to Calcium Metabolism." Removal of the parathyroid glands results in tetany. An upset in the calcium metabolism causes excessive calcemia and a reduction of calcium in the bones results in the formation of large cysts in the bones. Hypercalcemia increased the calcium excretion. Von Recklinghausen's disease is due to the increased function of the parathyroids and can be relieved by the removal of the parathyroids. Tumors in the region of the parathyroids have been palpated but to say whether they were of thyroid or of parathyroid origin is impossible, therefore, the level of serum calcium is the best evidence of parathyroid disease. Viosterol has an action very similar to that of parathormone. Tetany following parathyroidectomy can be controlled by ergosterol. A lack of vitamine D produces the same effect. Parathyroidism influences the level of the serum calcium and this is the best index. These changes are effected by vitamine D or parathormone.

Thomas B. Futcher, Baltimore, discussed the "Etiology and Treatment of Diabetes Insipidus." Some mechanisms control the water metabolism in the body. The first conception was that it was due to the disease of the pituitary and the second that it was in the tractus periopticus. Quite a number of cases of polyruia have been reported in connection with injury to, or neoplasms in or near the pituitary and others in the hypothalamic and infundibular regions. There is a definite tract from two nuclei in the floor of the fourth ventricle. From these nuclei come the fibers which come down from the infundibulum and it is believed that the centers which control the water metabolism are located in these nuclei in the floor of the fourth ventricle. This tract probably explains why polyuria followed disturbances in this region and that any injury to any part of this tract may produce polyuria. Pituitrin helps in some cases.

Dr. Frank A. Evans, Pittsburgh, discussed "Metabolic Factors of Value in the Treatment of Obesity." He said that a properly balanced diet is safe. Adequate protein must be given and acidosis must be kept in mind. The menu is one gram of protein and twenty-five calories of carbohydrates per kilo. Fats less than 25 grams. One hundred and eighty-seven patients on this diet lost on an average of thirty-seven pounds at the rate of three and one-half pounds a week. Thyroid is not indicated unless there are definite symptoms of thyroid insufficiency. Hunger disappeared within seven days. Cases of hypothyroid tendency were given small doses of thyroid extract. In most cases it was unnecessary.

Dr. Chas. W. Barrier, Fort Worth, Texas, discussed "Tachycardia; Its Etiology, Prognosis and Treatment." Tachycardia may come on abruptly and pulse rate may increase on account of exercise or excitement or a fast sinus rate and it may change to auricular fibrillation. The treatment is to remove the cause. In some cases, iodine, thyroidectomy, digitalis or calcium chloride are given. One-half of the cases were relieved by quinidine; he gave six to twenty-one grains daily and gave digitalis over a period of from two to four years. He reported a case, who, when first seen, had a pulse rate of 255. He gave him eight c.c. of digitin intravenously and in 15 minutes the pulse rate came down to 120. In another, the rapid pulse was brought down with quinidine. In a third case, which was nodal tachycardia, the pulse rate at 8:25 a.m. was 255. Patient was given digifolin, four doses at ten-minute intervals, and at 9:00 a.m. the pulse rate had dropped to 180. Case 4 had a rate of 195 and was given digitin, 4 c.c. and the rate dropped to 110 in forty-five minutes. In case 5 the rate was 190 at 11:50 a.m. Patient was given 12 c.c. digitin in four doses and an hour and ten minutes later the pulse rate had fallen to 50. In another case the attack was arrested with digitin, digifolin and quinidine.

Dr. Ray M. Balyeat, Oklahoma City, spoke on "Allergic Migraine." He said the protein cause of hay fever and asthma is well known and that many allergic cases suffer from migraine. In a series of several hundred cases of migraine, he found that thirty per cent of the cases showed evidence of migraine before ten years of age; thirty per cent before twenty years of age; twenty-five per cent before thirty years of age; twelve per cent before forty years of age. Seven per cent of the people in the United States suffer from migraine and these people have a high I.Q. An attack usually comes on, first with a period of depression followed by mental hyperactivity; a good appetite, then they have a "druggy" night's sleep and get up in the morning with a beginning aura or vertigo, scotoma, photophobia, paresthenia, motor aphasia, hemicrania which may be bilateral or unilateral, emesis, vasomotor exhaustion and polyuria. Migraine, asthma and hay-fever run in families according to the Mendelian law. Adrenalin will control an attack of migraine just as it does asthma or urticaria. Epilepsy is also sometimes allergically related. Attacks are associated with fatigue, physical inertia, thyroid dysfunction, genito-sexual symptoms, disturbances of the special sense and exciting causes. There are theories about endarteritis vasomotor spasm, vasomotor dilatations and endocrine dysfunctions, especially pituitary but no definite pathology has been demonstrated. Prognosis as to life is good. The treatment is to reduce the food, place the patient in a dark room. Drugs are useless.

Dr. W. Howard Dickson, Toronto, Canada, discussed "Colonic Changes in Chronic Arthritis." In cases of intestinal stasis, fecal matter lies in the bowels for several days. This facilitates the absorption of toxins. Lane's theory is combated by many. Arthritis may be secondary to focal infections but intestinal stasis was given as the cause by many. Many cases are found to have been on diet deficient in vitamine B. This type of diet develops an atonic and lengthened colon. He had x-ray pictures showing colons of this type and when the patients were put on a diet rich in vitamine B, the bowel returned to normal appearance with accompanying relief of the arthritis. He does not consider the colonic condition, however, as the primary cause of the arthritis, but indicates the general condition. Crowding of vitamine B seemed to relieve both phases of the picture.

Drs. Stewart R. Roberts and Roy R. Kracke, Atlanta, Ga., discussed "Agranulocytosis; Its Classification with Cases and Comments Illustrating the Leukopenic Trend from 8000 Blood Counts in the South." They cited the case of a strong man who has been perfectly well, then he began to feel tired, had fever and sore throat the next day, and in eight days he was dead. This is a condition that is different from anything that we know at the present time. The authors believe that the origin of this disease is in the bone marrow and that the patient is in the third stage before he feels any symptoms and summons aid. The absence of granulocytes from the blood stream for over six days is incompatible with life. Those who live long enough to develop sepsis or have cold abscesses offer the best prognosis as this sepsis stimulates the production of granulocytes. The authors believe this to be a clinical entity. Very little is known of leukopenia or granular cells. It may be that they are the chief source of immune bodies. They classified the cases as acute granulopenia, acute agranulosis with sepsis, acute recurring agranulosis with the granulocytes showing an acute drop and this is an uncharted sea. The case he cites was of a man 51 years of age, in good health, who began having spells of sleeplessness and just did not feel good. This attack lasted four days with a recurrence in two weeks. The granulocyte count was 1400 when it should have been 5000. Acute agranulopenia is the first step toward agranulosis. Is it a different condition, or is it a different stage of the same condition? The fall of the granulocyte count causes symptoms. A child eighteen months of age was acutely ill, the fourth day had a rash and the temperature dropped and it made an immediate recovery. Does the leukocytosis of meningitis account for the enormous strength of these people in this condition and the leukopenia with influenza explain the feeling of extreme lassitude, tiredness, and complete inertia. Sternal puncture in these cases showed the marrow diseased. The blood count showed incomplete white cells undergoing degeneration. Several names have been suggested for this condition, but the authors favor "agranulosis."

Dr. Richard A. Kern, Philadelphia, Pa., discussed "Diet as a Factor in the Etiology of Anemia." He stated the red cells and hemoglobin content of the blood are maintained under adverse circumstances. That the blood will rob the tissue in order to keep these up. Anemia results from dietary causes when an improper diet is practiced for a long time. Anemia occurs in babies kept on milk too long. Physicians should study the dietary habits of their patients. Seventy-five per cent of the cases of severe anemia give a definite history of a diet in-

sufficient in vitamines, also a diet deficient in red cell and hemoglobin forming material. Anemia in a baby fed on goat's milk is likely due to the action of some fatty acids and a change to cow's milk alone allows the anemia to clear up. There are probably many potential pernicious anemias that have not yet developed. The highest rate in Germany occurred in 1923 when food was scarce over there and at that time they had eight times as many cases of pernicious anemia as they had in 1908 or as they had in 1926 when food was again plentiful. He reported the case of an Irishman who had been a vegetarian. Finally he decided not to eat any vegetables that had been nourished by fertilizer from animal sources and he had been living on practically nothing but boiled potatoes. He came in with his legs swollen, nutritional edema, jaundice, vision failing—extreme pernicious anemia. He was put on a diet rich in eggs and milk and picked up immediately. This food was disguised but when he found out what they were feeding him, he left the hospital and went back home to his own diet and died within a short time. His conclusions were that anemia from dietary causes results only when the patient has been on bad diet for a long period of time.

Dr. Chester S. Keefer, Boston, discussed the "Anemias Associated with Gastro-Intestinal Disorders; Clinical Considerations and the Value of Iron in their Treatment." We have anemia associated with chronic dysentery. These cases, of course, are due to the restricted diet and usually clear up as soon as the patient gets back on a regular diet. In anemia of hookworm disease the cause is obscure. These cases recover without removing the worms and liver and iron work well in these cases. In ulceration of the intestines and tuberculous enteritis the anemia results from disturbance of the nutrition and on account of the diet.

Dr. Cyrus S. Sturgis, Ann Arbor, Mich., discussed "Clinical and Experimental Observations on the Treatment of Pernicious Anemia with Ventriculin and with Liver Extract." He stated every case of pernicious anemia had functional impairment of the gastric mucosa and achlorhydria. Not all patients survive gastrectomy long enough to develop anemia. He believes that in pernicious anemia it is not altogether the absence of hydrochloric acid but the absence of an unidentified enzyme which causes the anemia. Ventriculin is stomach tissue desiccated and defatted by benzine. Amount given is generally ten grains daily for every one million deficiency in the red cells. When the blood reaches a normal level, give a maintenance dose of ten grams two or three times a week. This can be easily given either in tomato or orange juice. Ventriculin gives about the same cure as liver. He showed a chart of fifty patients who had made an average gain of twenty pounds in nineteen weeks. Ventriculin will not stand heat. Mucosa and muscles of the stomach wall act equally well. He believes the material is soluble, but is not sure as yet. It fails in case the diagnosis is incorrect and it fails with acute infections. Treatment will fail on inadequate dosage or inactive preparation; also fails with gastric retention.

Dr. George R. Minot, Boston, and William B. Castle, Boston, discussed "The Adequate Treatment of Anemia." Removal of the cause is the first thing, and correction of defects in the diet of the individual depends not on liver and ventriculin but in getting at the difficulty you cannot explain. In kidney complications, if you do not get results on regular dosage, double the dose. Maintenance varies widely and a rise in hydrocholoric acid and red count alone do not determine the dose. The patient himself can tell you whether he feels well or not. Symptoms are important as also any laboratory experiments. Arteriosclerosis is a factor. In the liver extract there is at least a 45 per cent loss. The older the individual, the greater the arteriosclerosis and they need more, perhaps double the amount. Palsy is better treated by large amounts, never simply a maintenance diet, but enough to make patient feel good. When hemoglobin goes up to 70, add iron and it will go up to 80. The iron is good in case of high color index. After intercurrent disease, if the hemoglobin goes down, give iron and the color index goes up. Achlorhydria may be present in secondary anemia. The action is more than putting iron into the bood, it also has an effect on metabolism. In giving iron, give 350 milligrams in acid medium in a soluble form as citrate or iron and ammonium citrate. Give it constantly and keep it up or a relapse is bound to occur. Whole liver in large amounts is better than any extract. Iron will do all that liver will do in secondary anemia but you will get better results if you add liver. Anemia often comes from an unfit diet. Study previous diets and you may find the cause, but diet alone will not correct it; iron may help and liver gives additional help. Liver will give a rise in hemoglobin. In a case which was on iron alone and not improving, he added liver and patient showed immediate improvement. Use green vegetables and vitamines, but by all means treat the patient as a whole.

CASE OF ONE YEAR'S INTERMITTENT EPIGASTRIC PAIN

(Diagnostic Discussions)

Case No. 16492,, Case Records of Massachusetts General Hospital, from New Eng. Jour. of Med., Dec. 4, 1930, p. 1163.

Case History

A Canadian woman forty-two years old, an attendant nurse, entered May 26 complaining of intermittent pain and soreness in the pit of the stomach of a year's duration.

Since the onset she had had five or six attacks similar to the present one lasting from one to three days. The present attack began eight days before admission, with sharply localized epigastric pain beginning half an hour after luncheon, gradually increasing in severity and passing off somewhat later. Forthree days she hadthis pain off and on, with no apparent relation to meals. For the past five days it had been constant, although it varied somewha tin intensity. It was accompanied by cutaneous soreness. When it was worst it went straight through to the middle of the back and extended a short distance along the costal margin on each side in front. When most severe it was griping and her stomach felt distended. She had stayed in bed for the past five days because the pain was less when she was quiet. Nothing gave relief except a hot water bottle and soda. The latter she took in such quantities that it causde vomiting. In the past five days she had taken little except rice, cream and weak tea. On two mornings she had felt slightly nauseated, but had had no vomiting except when she induced it. During the past few months her weight had fallen from 127 pounds to 116 and she had lost appetite. She thought there had been some mucus in her stools during the past few days.

The family history is not significant.

At eighteen she had an attack of rheumatic fever. At twenty she had three severe hemorrhages from the lungs and her sputum was repeatedly positive for tuberculosis. She spent a year and a half at Saranac. She had been "cured" for four years. Sixteen years before admission, after six months of indigestion and a severe attack of pain, her gall bladder was drained. Six months later it was removed. Ten years before admission her tonsils and adenoids were removed because she had many colds and sore throats. She had had no sore throats since that time. Nine years before admission her appendix xwas removed. About that time she began to notice increasing dyspnea on exertion, slight nonproductive cough, and frequent palpitation even without exertion. For the past three months she had been taking digitalis. For six months her menstrual flow had been less. The last three periods had come at intervals of fourteen to eighteen days.

Clinical examination showed a well-nourished woman lying in bed, quietly complaining of pain. The skin was lightly sallow, the mucous membranes pale. There was visible arterial pulsation in the neck and a palpable impulse in the suprasternal notch. There were scars of old tuberculous glands on the right side. The apex impulse of the heart was felt in the fifth space 10.5 centimeters to the left of midsternum and one centimeter to the left of the midclavicular line. The left border of dullness was 11 centimeters to the left. The rhythm was regular, the action strong. There was a short soft murmur prolonging the first sound, best heard at the base. The pulmonic second sound was distinct. The aortic second sound was replaced by a harsh blowing murmur extending into diastole but starting before the pulmonic second was heard. This was heard all over the precordia, best in the aortic area. The blood pressure was 160/20. There was Corrigan pulse. Pistol shot was heard over the arteries. The upper half of the abdomen was full, somewhat tense and very tender. Deep pressure in the right flank caused pain in the midepigastrium and also to a much less degree in the left flank. The tenderness was so great that deep palpation was impossible and percussion could be done only very lightly. The area seemed somewhat tympanitic. It pulsated with the heart. There was slight tenderness in both costovertebral angles, more on the left. There was slight spasm of the left erector spinae. All the deep reflexes were very active. Bilateral patella jerks. Pupils normal. The fundi showed some tortuosity of the vessels and some silver wire appearance.

Urine: amount not recorded, specific gravity 1,024 to 1,016, a slight trace of albumin at one of two examinations, leukocytes at both. Blood: 8,500 to 15,500 leukocytes, hemoglobin 55 to 60 per cent, polynuclears 74 per cent, reds 3,100,000 to 4,000,000, moderate achromia, moderate variation in shape and size, platelets decreased. No Hinton or Wassermann recorded. Sugar 95 milligrams. Fasting contents of the stomach: 35 cubic centimeters of yellow material, no free hydrochloric acid, total acidity 4. Test meal half an hour later: 20 cubic centimeters, free hydrochloric acid 20, total acidity 26. Test meal one hour later: 23 cubic centimeters with mucus, free hydrochloric acid 36, total acidity 51. Guaiac negative on all three specimens. Stool clay colored, guaiac negative. Vomitus, guaiac negative. Icteric index 2 to 5. Quantitative and qualitative van den Bergh indirect reaction 0.3 milligrams per 100 cubic centimeters. Rosenthal liver function test, no retention of dye in 30 minutes.

Temperature 97° to 100°. Pulse 85 to 120, with a terminal drop to 77. Respirations normal except for a terminal increase to 28.

X-ray examination of the stomach without a motor meal showed the stomach apparently normal except for vigorous peristalsis. The first portion of the duodenum was constantly irregular and there was a considerable degree of spasm about the irregularity. Barium passed through the pyloric valve and duodenum readily. At a second examination a week later the duodenum was considerably less irritable than at the first examination and could be well filled. The only deformity was apparently due to pressure from the liver. There was no evidence of ulcer. The variations from the normal might have been due to periduodenitis. At twenty-four hours there was a considerable quantity of barium retained in the proximal half of the colon. There was a questionable irregularity in the left extremity of the transverse colon which it was thought should be checked by a barium enema. A film of the abdomen centered over the region of the pancreas showed no visible areas of calcification. No stones were seen. Films of the kidney regions and the dorsal and upper lumbar region were essentially negative.

In the ward the patient had complained of less pain, although morphia was often necessary. The pain seemed to reach its maximum in the late afternoon and evening without much relation to food. By June 8 she had lost eight pounds. She persisted in vomiting milk. The interne noted at the fluoroscopy that the heart shadow was triangular, with enlarged left ventricle and prominence in the region of the pulmonary conus, which with the auricles entirely obscured the shadow of the aortic arch. In the lateral view the left auricle was seen greatly enlarged and projecting posteriorly, where it displaced the esophagus to the left.

Additional history was now obtained from the patient's family. Since her cholecystectomy four years before her admission she had had attacks of

(Continued on page 286)

MINUTES OF THE FORTIETH ANNUAL MEETING OF THE ARIZONA STATE MEDICAL ASSOCIATION

Nogales, May 7, 8 and 9, 1931.

COUNCIL MEETING

The Council of the Association convened at 9 a. m., May 7, 1931. It was called to order by the president, Dr. J. M. Greer of Phoenix. Roll call showed the following members present: Dr. J. M. Greer of Phoenix (president), Dr. H. A. Reese of Yuma (president-elect), Dr. S. H. Watson of Tucson (past president), Dr. C. E. Yount of Prescott (treasurer) Dr. D. F. Harbridge of Phoenix (secretary), Dr. G. F. Manning, Jr., Flagstaff (councilor), Dr. W. W. Watkins of Phoenix (councilor).

The minutes of the meeting of 1930 were read and approved.

It was moved and seconded that Dr. Clarence Gunter, chairman of the Committee on Public Welfare, be considered a member of the Council for this meeting, pending the adoption of amendment to the constitution which will make the chairman of this committee a regular member of the Council. Motion was carried.

It was moved and seconded that Dr. Gunter's report be given to the House of Delegates, as a matter of general interest to the Association. Motion was carried.

Treasurer's Report was presented by Dr. Yount (see May issue of this journal)). It was moved and seconded that the report, including the recommendation that the dues be continued at $12.50 per annum, apportioned in the same way as in 1930, be approved. Motion carried.

The Council moved and carried a vote of thanks to Dr. Yount for his excellent work as treasurer.

It was moved and seconded that the Council authorize the treasurer to reinvest the funds now invested in Liberty Loan bonds, in Government bonds as fast as the Liberty Loan bonds are called in. Motion carried.

The matter of prorating dues of members who transfer from other states was brought up. It was moved and seconded that the full state dues be required of any member who transfers to any constituent county society of this Association from another state. Motion carried.

Attention being called to the fact that Maricopa County Medical Society has incorporated and adopted a new constitution, it was moved and seconded that they be asked to present their new constitution and by-laws to this Association for consideration at the 1932 meeting. Motion carried.

Secretary's Annual Report was presented, showing a membership on May 1 of 272.

Report of the Committee on Medical Defense was presented. (See Mr. Holton's communication.)

Supplementing this report was a communication from Mr. C. R. Holton, attorney for the Association, and it was moved and seconded that this communication be published in the official journal for the information of all members of the Association. Motion carried. (Note—This communication appeared as an editorial article in the May journal.)

Council meeting adjourned.

MEETINGS OF THE HOUSE OF DELEGATES

The first executive session of the House of Delegates was held at 9 a. m., May 8. It was called to order by the president, with the following delegates present: Dr. R. B. Durfee (Cochise), Dr. G. F. Manning (Coconino)), Dr. Clarence Gunter (Gila), Drs. E. P. Palmer, H. T. Bailey, O. H. Brown, Victor Randolph, Harley Yandell, F. B. Sharp, J. M. Pearson, J. J. McLoone, J. A. Copeland (Maricopa), Dr. A. P. Kimball (Yuma); Councilors: Drs. H. A. Reese, D. F. Harbridge, W. W. Watkins, J. M. Greer, G. F. Manning and C. A. Thomas.

Minutes of the last meetings of the House of Delegates were presented in abstract form by the secretary and approved.

Dr. Clarence Gunter, chairman of the Committee on Public Welfare, gave a verbal report on the activities of his committee, particularly with reference to the Basic Science Bill and the Narcotic Bill. He told how the Basic Science Bill was defeated by being kept from vote, first in the Senate and then in the House. It was finally passed in the Senate and would have passed the House if it could have been gotten to a vote. The full details of his report cannot be published, as they were given in confidential executive session.

Adjournment to 9 a. m., Saturday, May 9.

Second executive session of the House of Delegates was held at 9 a. m., May 9th, with Dr. H. A. Reese, president, presiding. Delegates present, Drs. Durfee, Ferguson, Fitzgerald, Manning, Holt, Sharp, Harbridge, Bailey, Victor Randolph, Greer, Gibbes, Kimball and Brazee.

Dr. Kimball made a report of the situation in Yuma County with regard to a Mr. Smith who is masquerading as a physician and practicing without a license, and in whose case the county attorney has been unable to secure a jury verdict of guilty.

Dr. Manning submitted the Report of the Necrology Committee with regard to deceased members; this report is published elsewhere in this issue of the journal.

Dr. Harbridge made report as a member of the Board of Managers of Souhtwestern Medicine, to the effect that the journal is constantly improving and is an admirable publication.

Dr. Harbridge also reported for the Medical Defense Committee. in substance as contained in Mr. Holton's communication.

The amendments to the Constitution and By-Laws proposed at the 1930 meeting were presented for action. It was moved and seconded that they be adopted. and after some discussion motion was put and carried. The effect of these amendments will be to place the chairmen of the Committees on Medical Defense and Public Welfare on the Council as regular members ex-officio.

Adjournment to the close of the Scientific Session.

The Open Meeting of the House of Delegates was called to order at 11 a. m., May 9. with Dr. H. A. Reese, president, presiding. The chief order of business was the election of officers, and this resulted in the following unanimous choices:

President-Elect—Dr. Clarence Gunter, Globe.

Vice-President—Dr. C. R. Swackhamer, Superior.

Treasurer—Dr. C. E. Yount, Prescott

Secretary—Dr. D. F. Harbridge, Phoenix

Chairman of Committee on Public Welfare—Dr. John E. Bacon, Miami.

Committee on Medical Defense—Dr. R. D. Kennedy.

Councilor from Northern District—Dr. G. F. Manning, Jr., Flagstaff.

Delegate to American Medical Association—Dr. E. Payne Palmer, Phoenix.

National Legislative Committeeman—Dr. R. J. Stroud, Tempe.

Dr. W. A. Holt of Globe, on behalf of the Gila County Medical Society, invited the Association to hold the 1932 meeting at Globe-Miami. It was moved, seconded and voted that this invitation be accepted.

It was moved and carried that a registration fee of $5.00 be charged each doctor attending the annual meetings.

Dr. Holt complimented Dr. Gunter for his work

on the Welfare Committee and expressed a wish that he might be recompensed for expenditures of time and money. After some discussion it was moved and carried that a committee be appointed to attend to this. The president appointed as this committee, Drs. Greer, Harbridge and Yount.

It was moved and seconded that a resolution of thanks be made to the members of the Santa Cruz County Medical Society for the fine entertainment of the Association. Motion was carried.

Dr. Reese expressed his gratitude for the cooperation given him during his year as president-elect and chairman of the Program Committee.

Adjournment sine die.

SCIENTIFIC SESSIONS

Dr. J. M. Greer of Phoenix, president, opened the first meeting May 7, at ten o'clock, in the Firemen's Hall.

The invocation was offered by Rev. J. L. Patton of Nogales, Arizona.

Addresses of welcome were given by Mayor Harry J. Karnes of Nogales, Arizona, and Presidents A. C. Villasenor of Nogales, Sonora, the latter in Spanish and translated by Dr. A. L. Gustetter of Nogales, Arizona.

Responses to these speeches were given by Dr. Robert Ferguson of Bisbee, and Dr. E. E. Priego, of Nogales, Sonora, the second translated from the Spanish by Dr. Gustetter.

Dr. Harry A. Reese, of Yuma, was then introduced as President-Elect, by Dr. Greer. He gave his President's Address and officiated at all meetings following.

Dr. T. J. McCamant, as Fraternal Delegate of the Texas State Medical Association, extended greetings to the Arizona State Medical Association.

Dr. William L. Bell of Oakland, gave the opening paper of the program, using as the title of his work, "What Constitutes the Modern Bone Surgeon."

Dr. Frank V. Meriweather of Picher, Oklahoma, gave the second paper of the session on "Silicosis."

Papers by Dr. Bell and Dr. Meriweather were discussed together. Dr. Victor Randolph of Phoenix and Dr. A. P. Kimball of Yuma asked questions of Dr. Bell, and Dr. Greer presented the subjective side of caring for patients with bone injuries. Dr. W. W. Watkins of Phoenix, and Dr. F. F. Miller of Miami discussed the paper on silicosis. Doctors Bell and Meriweather then closed their papers. This concluded the morning meeting.

At 2 p. m., May 7, the convention was again called to order.

Dr. R. K. Smith of Tucson read a paper on "Prenatal Care," and Dr. Floyd B. Sharp of Phoenix followed with one entitled "Birth Injuries to the New Born." Dr. C. E. Yount of Prescott opened a discussion of the two papers, which was followed by Drs. Harbridge and Greer and closed by Drs. Smith and Sharp.

At this point place on the program was given to Dr. John H. White of Phoenix, whose apportioned time in the program of the morning had been given to Dr. Meriweather. Dr. White spoke on "The Healing of Myocardial Infarcts." Dr. C. S. Kibler of Tucson, who was to have opened the discussion of this paper was absent, but questions and comments were offered by Drs. F. F. Miller of Miami, W. W. Watkins, Phoenix, Thomas O. Burger, a guest from San Diego, Victor Randolph, E. Payne Palmer of Phoenix. Dr. White then closed the discussion.

Dr. Charles W. Brown of San Diego opened the Friday morning session, May 8, with a talk on "Bronchoscopic Diagnosis and Treatment, Including Foreign Bodies," illustrating it profusely with lantern slides. Dr. H. T. Bailey and Dr. McLoone gave discussions of Dr. Brown's paper.

The second and concluding paper of the morning was given by Dr. C. A. Thomas of Tucson, concerning "Head Injuries." Dr. R. B. Raney of Phoenix lead the discussion of Dr. Thomas' paper, and other discussions followed, by Drs. E. Payne Palmer, O. H. Brown, J. J. McLoone, D.R. Gaskins, all of Phoenix, Dr. Holt of Miami, and Dr. Thomas closed the discussion.

At two o'clock Friday afternoon, Dr. A. P. Kimball of Yuma read a paper on "Spinal Anesthesia." Drs. E. Payne Palmer and Dudley Fournier of Phoenix read a paper which they had written in collaboration, entitled "Sodium Amytal in Surgery and Obstetrics."

Discussion of these two papers on anesthesia was deferred until later in the afternoon because of the absence of Dr. Harry Carson of Phoenix who was to have opened it.

Dr. John W. Flinn of Prescott spoke on "Specific Treatment of Pulmonary Tuberculosis." Discussions which followed were led by Dr. S. H. Watson of Tucson. Ohers who contributed were Drs. Victor Randolph of Phoenix, F. F. Miller of Miami, C. W. Brown of San Diego. Dr. Flinn added a few words in closing.

The fourth paper of the afternoon was presented by Dr. O. H. Brown of Phoenix, who used as his subject, "Successful Treatment of Eczema, Urticaria, Angioneurotic Edema, Etc., by Dietary Regulation and Digestants." Discussions of Dr. Brown's paper were given by Drs. R. A. Wilson of Tucson, D. R. Gaskins of Phoenix, C. A. Thomas of Tucson, H. T. Bailey of Phoenix, Harry Carson of Phoenix, C. W. Brown of San Diego, and the discussions were closed by Dr. O. H. Brown.

Dr. Harry Carson of Phoenix then gave his discussion of the papers on anesthesia. Dr. Burger and Dr. Fournier each gave a few words in closing their papers.

On Saturday morning, May 9, the program was found to be very crowded, and Dr. D. F. Harbridge of Phoenix, whose paper had not been given time on Friday afternoon, was asked to present it as the opening one in the Saturday morning session. He consented to read it by title only, "Retinal Vascular System," and to present five lantern slides.

Dr. E. A. Gatterdam of Phoenix spoke on "Atelectasis (Massive Collapse) in Tuberculosis."

Dr. W. Claude Davis of Tucson read a paper entitled "A Study of Intestinal Tuberculosis."

These two papers were discussed together, Dr. Howell Randolph's opening discussion of Dr. Gatterdam's paper was read by Dr. Victor Randolph, who also discussed the paper. In the absence of Dr. Milloy, Dr. John H. White of Phoenix read his opening discussion of Dr. Davis' paper. Other discussions were given by Dr. Robert Flinn of Phoenix, and the discussions were closed by Drs. Gatterdam and Davis.

Dr. E. E. Priego of Nogales, Sonora, gave a case report of "Tetanus Following Hemorrhoidectomy." This was translated by Dr. V. A. Smelker of Nogales.

Dr. E. C. Houle of Nogales, Arizona, discussed this case, and Dr. Smelker closed the discussion.

Adjournment sine die.

THE NEW MEXICO MEDICAL SOCIETY

NOTES ON THE FORTY-NINTH ANNUAL MEETING

Albuquerque, N. M. — May 20-22, 1931.

"Biggest" and "best" were the popular adjectives used in discussing the meeting, the old-timers agreeing without duobt that both correctly described the forty-ninth session.

The large attendance was most pleasing and gratifying to the officers and members of the Bernalillo County Medical Society, who had spared neither time, energy nor money, to make the meeting a success and to secure noted men of the southwest in providing a well-balanced program of excellent scientific papers on subjects varying from sources of infant mortality to the treatment of delirium tremens.

Among the many interesting features worthy of special comment were the Skin Clinic, conducted by Dr. George P. Lingenfelter, Professor Dermatology and Syphilis, University of Colorado, at which many difficult cases were discussed and diagnosed; the masterly paper on "William Beaumont, America's First Contribution to World Medicine," presented by Dr. John W. Amesse, President of the Medical Society of the City and County of Denver, with which he exhibited a replica of the William Beaumont medal, International Physiological Congress, Boston, 1929, and a copy of an old newspaper, The Albion, dated January 4, 1834; and Dr. James Vance's (El Paso) account of his "Personal Observations of Cholecystitis," wherein he admitted being Scotch. No wonder his uncanny skill at the old golf game.

The election of officers resulted in:

President-Elect—Dr. F. D. Vickers, Deming, N. M.

Vice-President—Dr. H. A. Ingalls, Roswell, N. M.

Secretary-Treasurer—Dr. L. B. Cohenour, Albuquerque (re-elected).

Councilors, three years—Dr. Carl Mulky, Albuquerque; Dr. C. W. Gerber, Las Cruces.

Councilor to fill unexpired term of Dr. Harry Mera—Dr. R. O. Brown, Santa Fe.

Delegates to A. M. A.—To be announced later by President.

Delegate to Texas State Meeting—Dr. R. L. Bradley, Roswell, N. M.

Delegate to Colorado State Meeting—Dr. C. B. Elliott, Raton, N. M.

Delegate to Arizona State Meeting—Dr. F. D. Vickers, Deming, N. M.

Redistricting the state to better establish the jurisdiction of each of the six councilors, in order to arrange the districts in a manner more easily visited, resulted in the following new arrangement:

First District, Dr. C. B. Elliott, Councilor, comprises Union, Colfax, Harding, Mora and Taos Counties.

Second District, Dr. R. O. Brown, Councilor, comprises Santa Fe, Rio Arriba, San Juan, McKinley and San Miguel Counties.

Third District, Dr. Carl Mulky, Councilor, comprises Bernalillo, Sandoval, Torrance, Valencia, Socorro and Catron Counties.

Fourth District, Dr. Harry A. Miller, Councilor, comprises Curry, Roosevelt, Guadalupe, Quay and DeBaca Counties.

Fifth District, Dr. W. T. Joyner, Councilor, comprises Chaves, Eddy, Lea, Lincoln and Otero Counties.

Sixth District, Dr. Charles W. Gerber, Councilor, comprises Dona Ana, Luna, Sierra, Hidalgo and Grant Counties.

The selection of Santa Fe as the next meeting-place was pleasing to all and a fitting tribute that the capital city should sponsor the half-century anniversary of the Medical Society.

The dinner dance at the Franciscan Hotel and the smoker at the Country Club were very enjoyable affairs and well attended, the boxing matches and wrestling bout affording much amusement and evoking the enthusiasm of even the most staid and dignified members of the profession.

The visiting doctors who were on the program were honored at a dinner given by the President, Dr. M. K. Wylder, at his beautiful home, on Thursday evening. This was just one of the many hospitable and courteous acts performed by members of the profession at Albuquerque for the entertainment and enjoyment of the visitors.

The new Director of the State Board of Health, Dr. J. R. Earp, was in attendance at the daily sessions, taking an active part in the discussion of the medical papers and relating interesting war experiences.

Those registering numbered 107, as follows:

Dr. C. F .Milligan and wife, Clayton, N. M.
Dr. R. L. Bradley, Roswell, N. M.
Dr. M. B. Culpepper, Carlsbad, N. M.
Dr. L. B. Cohenour, Albuquerque, N. M.
Dr. Carl Mulky, Albuquqerque, N. M.
Dr. C. W. Gerber, Las Cruces, N. M.
Dr. Troy C. Sexton, Las Cruces, N. M.
Dr. F. D. Vickers and wife, Deming, N. M.
Dr. M. K. Wylder, Albuquerque, N. M.
Dr. Robert O. Brown, Santa Fe, N. M. .
Dr. S. D. Swope, El Paso, Texas.
Dr. W. H. Woolston, Albuquerque, N. M.
Dr. Henry T. Sethman, Denver, Colo.
Dr. C. S. Hart, Dawson, N. M.
Dr. T. P. Martin and wife, Taos, N. M.
Dr. J. R. Earp, Santa Fe, N. M.
Dr. E. E. Royer, Albuquerque, N. M.

Dr. Crum Epler, Pueblo, Colo.
Dr. G. P. Lingenfelter, Denver, Colo.
Dr. J. W. Amesse, Denver, Colo.
Dr. John R. Evans, Denver, Colo.
Dr. S. G. Von Almen, El Paso, Texas.
Dr. H. A. Ingalls, Roswell, N. M.
Dr. C. Russell and wife, Artesia, N. M.
Dr. T. Espinosa and wife, Espanola, N. M. .
Dr. C. B. Elliott, Raton, N. M.
Dr. E. W. Serrell, Denver, Colo.
Dr. E. C. Matthews, Albuquerque, N. M.
Dr. W. C. Tipton,
Dr. F. W. Allen, Albuquerque, N. M.
Dr. R. W. Mendelson, Albuquerque, N. M.
Dr. L. F. Elliott, Albuquerque.
Dr. Evelyn F. Frisbie, Albuquerque.
Dr. L. G. Rice, Albuquerque.
Dr. J. A. Reidy, Albuquerque.
Dr. C. A. Miller, Las Cruces.
Dr. W. F. Wittwer, Las Lunas.
Dr. W. H. Livingston, Santa Fe.
Dr. W. T. Joyner, Roswell.
Dr. T. E. Carmody, Denver, Colo.
Dr. M. G. Cartwright, Albuquerque.
Dr. A. E. Bessette, Albuquerque.
Dr. Hugh Jones, Los Angeles, Cal.
Dr. J. R. Scott, Albuquerque.
Dr. W. C. Barton, Santa Fe.
Dr. J. L. Garduno, Albuquerque.
Dr. R. L. Hust, Albuquerque.
Dr. P. G. Cornish, Jr., Albuquerque.
Dr. P. G. Cornish, Sr., Albuquerque.
Dr. W. R. Lovelace, Albuquerque.
Dr. Henry H. Clark, Denver, Colo.
Dr. B. J. Weigel, Albuquerque.
Dr. S. L. Burton, Albuquerque.
J. H. MacWhorter, El Paso, Texas.
Dr. J. T. Bennett, Albuquerque.
Dr. M. P. Beam, Albuquerque.
Dr. R. F. Hogsett, Albuquerque.
Dr. M. R. Warden, Albuquerque.
Dr. C. A. Frank, Albuquerque.
Dr. George K. Angle, Albuquerque.
Dr. C. L. McBride, Alling, N. M.
Dr. P. H. McNellis, Las Lunas.
Dr. E. W. Johns, Albuquerque.
Dr. J. E. J. Harris, Albuquerque.
George McAlmon, El Paso, Texas.
Dr. Z. E. Funk and wife, Santa Rosa.
Dr. J. W. Elder and wife, Laguna.
Dr. N. L. Mistachkin, Minneapolis, Minn.
Dr. C. Reed, Albuquerque.
D. C. Groves, Albuquerque.
Dr. L. S. Peters, Albuquerque.
Dr. G. W. Griswold and wife, Roswell.
Dr. W. C. Finnoff, Denver, Colo.
Dr. M. F. J. Stewart, Raton.
Dr. H. L. Brehmer, Albuquerque.
Dr. H. E. Seales, Crownpoint, N. M.
Dr. C. H. Gellenthien, Valmora.
Dr. M. D. Gibbs, Roy, N. M.
Dr. J. R. Van Atta, Albuquerque.
Dr. H. E. Rodgers, Albuquerque.
Dr. P. Richards, Albuquerque.
Dr. E. E. Lukens, Albuquerque.
Dr. A. C. White, Hot Springs.
Dr. C. R. Bass, Cimarron.
Ezra A. Lewis, Albuquerque.
Dr. O. I. Nesbit, Espanola.
Dr. William Fahey, Fort Defiance, Ariz.
Dr. R. A. Duncan, Amarilla, Texas.
Dr. D. G. Stine, Columbia, Mo.
Dr. V. C. Hunt, Los Angeles, Cal.
Dr. R. D. Holt, Albuquerque.
Dr. James Vance, El Paso, Texas.
Dr. L. Emelyn Clark, Albuquerque.
Dr. C. J. Ambler, Mountainair.
Dr. W. G. Smith, Mora, N. M.
Dr. J. F. Lane, Santa Fe.
Dr. V. E. Berchtold, Santa Fe.
Dr. Curtice Rosser, Dallas, Texas.
Dr. N. H. Brush, Santa Barbara, Cal.
Dr. C. C. Davis, Albuquerque.
Dr. F. I. Ridge, Kansas City, Mo.
Dr. M. J. Geyman, Santa Barbara, Cal.
Dr. S. L. Wilkinson, Belen.
Dr. W. B. Cantrell, Gallup.
Dr. R. E. McBride, Las Cruces.
Dr. P. L. Travers, Gallup.

PUBLIC HEALTH NOTES FROM NEW MEXICO

By PAUL S. FOX, Chief, Division of Sanitary Engineering and Sanitation, New Mexico State Bureau of Public Health.

The seventh annual meeting of the New Mexico Public Health Association was held in Santa Fe at La Fonda Hotel on May 11, 12 and 13.

On account of serious illness, the president, Dr. J. C. Holmes, was unable to attend. Miss Marie A. Brunk, R. N. of Las Cruces, the vice-president, presided at the meeting.

On May 11, the address of welcome was delivered by Mr. J. D. De Huff, secretary of the Santa Fe Chamber of Commerce. Mr. A. E. Barnes, city inspector of Santa Fe, gave a paper on "Practical Points in City Sanitation." Mr. Barnes stressed the need for supervision of milk supplies and described in detail recent improvements in the Santa Fe supply. He described also the present methods of garbage collection and street cleaning.

Dr. C. W. Gerber, Dona Ana County health officer gave a very interesting summary of the malaria control work which he has done in his county.

"Sanitation in Automobile Camps" was the title of a paper given by Mr. Paul S. Fox, state sanitary engineer. Mr. Fox spoke of the necessity of providing safe water and milk supplies and proper disposal of garbage excreta.

On the evening of May 11, an informal dinner was given at La Fonda. Covers were laid for one hundred and twenty guests. Dr. Walter Clarke, American Social Hygiene Association, New York, Dr. J. R. Earp, New Mexico State Health Officer, Dr. R. H. Wilson, McKinley County Health Officer, and Captain Patrick Irving O Hay, from Taos, gave after dinner talks. Captain O'Hay, a well-known soldier of fortune, is a veteran of seven wars; he has traveled with Richard Harding Davis, Jack London and O. Henry. The resume of some of his experiences kept the guests laughing for over two hours.

The program for May 12 included a paper on "Health Work in Schools" by Mrs. Georgia Lusk, State School Superintendent, which was discussed by Mrs. G. W. Prichard, president of the Santa Fe County School Board, Doctor Walter Clarke, American Social Hygiene Association, New York, gave many ideas regarding the control of venereal disease in rural communities. Doctor Clarke stressed the need of doing at least some venereal disease control work; if it is impossible to carry on this type of work on a large scale the activities should be confined to a small group of individuals who will cooperate with the authorities. It was pointed out that in the case of syphilis in pregnant women, treatment should be commenced, if possible, in the first half of pregnancy and if six or more treatments were administered, the chances were good for a normal child to be delivered. The impossibility of diagnosis of many cases of syphilis in pregnant women without a blood test was emphasized.

Miss Isabel L. Eckles, Santa Fe city school super-

(Continued on page 284)

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THE PROFESSIONAL BUILDING AT PHOENIX

The new Professional Building, now under construction by the Valley Bank & Trust Company, of Pheonix, will be ready for occupancy before December first. In addition to being an outstanding architecural ornament to the city's skyline, it will represent the culmination of many years of hopeful waiting by the medical and dental professions of Phoenix. It is the first steel frame building in the city and the sound of the riveting hammers has been sweet discord to the ears of the prospective occupants of the building, most of whom rejoice over the idea of spending their last summer in offices where the normal summer temperature is not artificially tempered.

The structure will be twelve stories, and from the fifth floor up will be occupied entirely by doctors and dentists. Those for whom offices have already been designed and who are expected to occupy their new quarters by the first of the year are the following:

The fifth floor wlil be taken entirely by the Pathological Laboratory, the Tri-State Dental Laboratory and the Associated Optical Laboratory.

The sixth floor will have offices for the Southwest Clinic (Drs. E. Payne Palmer, Frank J. Milloy, Dudley Fournier, Chas. N. Floussard and John H. White), Dr. A. C. Kingsley and Drs. W. A. Schwartz and B. L. Melton. Dentists on this floor will be Drs. R. L. Dunlap, H. A. Berry and Geo. H. Chiles.

On the seventh floor will be offices for Dr. Orville H. Brown, Drs. S. D. Little and C. B. Palmer, Dr. Harley Yandell and Dr. A. J. McIntyre. Dentists on this floor will be Drs. F. R. Smith, R. A. McCall, E. M. Pafford and Edgar B. Pease.

On the eighth floor will be the offices of Drs. Fred Holmes, Victor Randolph and Howell Randolph, Dr. Willard Smith, Dr. L. H. Thayer, Drs. A. M. Tuthill and Norman D. Ross, Dr. D. F. Harbridge and Dr. James L. Johnson. Dentists on this floor will be Drs. J. L. Borah, Logan D. Dameron, P. J. Ritchie, L. C. Mason and R. D. Creamer.

On the ninth floor will be the offices of Dr. Harry R. Carson, Dr. H. B. Gudgel, Dr. H. K. Beauchamp, Dr. D. R. Gaskins and Drs. George E. Goodrich, Vernon Kennedy, Jesse D. Hamer and Robert S. Flinn. The dentists on this floor will be Drs. Claude M. Moore, H. J. Jessop and T. W. Firth.

On the tenth floor will be the offices of Drs. John J. McLoone and O. W. Thoeny, Drs. George E. Shields and H. D. Ketcherside, Drs. Chas. W. Sult and R. B. Raney, and Dr. Thos. W. Woodman. The dentists with offices on this floor will be Drs. H. H. Braxtan and Dr. W. A. Baker.

On the eleventh floor will be the offices of Drs. Kimball Bannister and L. R. Kober, Dr. E. C. Bakes, Dr. Louis Dysart, Dr. F. C. Jordan, Dr. S. I. Bloomhardt, Dr. Joseph M. Greer and Dr. F. L. Reese. Dentists on this floor will be Drs. W. G. Barackman and L. F. Goodspeed.

The twelfth floor, which will be in the tower, will be occupied by the medical library of the building.

Prospective tenants who have not, at this writing, been definitely located as to space include Dr. Edgar H. Brown, Dr. L. A. W. Burtch, Dr. H. M. Purcell, and Dr. T. T. Clohessy.

The construction of the building is to be of the highest grade throughout. The ventilating system will be in multiple units, so that on any given floor any one or all of five areas can be ventilated, heated, or cooled, independently of the others. A stor-

age garage will be in the basement, reached directly by elevator, with exit by ramp onto Monroe Street.

The building was designed by Morgan, Walls and Clements of Los Angeles, with Mr. H. H. Green of Phoenix as collaborating architect. It is being erected by L. E. Dixon & Co., with Mr. Balch as superintendent of construction.

The medical profession of Phoenix should be grateful to Mr. Roy Wayland, vice-president of the Valley Bank, to whose personal interest in seeing a building especially designed and built for doctors and dentists in Phoenix we are indebted for this structure. His long association with the profession, as one of the leading druggists of the state, gave him an understanding of their needs, and when he became affiliated with the Valley bank he immediately put under way plans to make the long contemplated new Valley Bank structure a professional building for doctors and dentists. From this has materialized "The Professional Building" of Phoenix.

HAY FEVER A PUBLIC HEALTH PROBLEM

If an irrigation ditch conveying water through one of our western cities should be found contaminated with typhoid bacilli, it would arouse great activity until such a source of disease was eradicated. If it were found infected by a milder strain of organisms capable of causing sickness in a conciderable proportion of the population, it would be regarded as a public health problem. Yet along that ditch, with astounding indifference, we allow to grow weeds capable of producing sickness and disability in hundreds of people, and even to drive many of our citizens away from their homes in the city for months at a time. What does it matter whether disease producing agents are bacteria growing in water, or pollen thrown into the air from noxious weeds on the bank,—if they make people sick, and if that sickness is preventable, is not one condition just as much a public health problem as the other?

There is published in this issue a report from the Woman's Auxiliary of the El Paso County Medical Society, which should be read by veery doctor in every community where hay fever is prevalent. Why should we quarantine a case of measles so that the dwellers in a house may not spread the contagion, and permit them to let their Bermuda lawn grow up and pollenate? Hundreds of people sick with hay fever would prefer to take their chances with measles than be forced to walk by that lawn. We will not allow a man to keep pigs in the city limit, because the odor from a pigsty is unplesaant and the sty itself unsanitary; yet that man may own a vacant lot and may permit it to grow rank with Russian thistle or Johnston grass or ragweed, and every tenth person who passes that way is disabled by hay fever or asthma,—and the health department permits it. Let every city in the southwest learn from El Paso,—go and do likewise,—and we will profit more than we will from any other single public health activity that might be mentioned.

DR. WILLIAM C. TODT

At the regular meeting of the Arizona State Medical Association, held at Nogales, Arizona, May 7 to 9, the following preamble and resolutions were unanimously adopted:

Whereas, It has seemed good to the Ruler of the Universe to remove from among us our beloved friend and fellow-member, William C. Todt, M. D., of Kingman, Arizona, therefore, as in view of the loss we have sustained it is fitting that we should place upon record our feelings of appreciation of his services and regret for his loss, be it,

Resolved, That the sudden removal, by death, of our esteemed fellow-member from the position which he held as Vice-President of our Association created a vacancy not easly filled and that his fellow-members fully realize and deeply deplore the loss occasioned to themselves;

Resolved, That the members of this Asociation hereby desire to express their sense of bereavement and grief at the loss of one of our most faithful and gifted members, and to record the enjoyment and profit which they have long had in the genial, social, and intellectural qualities of the deceased;

Resolved, That we hereby extend our deepest sympathy to the bereaved relatives and friends of the deceased, hoping that even in the sadness of their affliction they may yet find some consolation in knowing that the worth of his private qualities and the value of his public services are properly appreciated;

Resolved, That a copy of these resolutions be properly engrossed and sent to the family of our deceased fellow-member, and that the resolutions be also published in Southwestern Medicine.

DR. ROBERT CRAIG DRYDEN

At the regular meeting of the Arizona State Medical Association, held at Nogales,

Arizona, May 7 to 9, the following preamble and resolutions were unanimously adopted:

Whereas, It has pleased Almighty God in His infinite wisdom to remove from our midst our honored and worthy fellow-member, Robert Craig Dryden, M.D., of Pima, Arizona, and

Whereas, The pleasant and intimate relations which for forty years he has held with this Association as a charter member and as one of the organizers of the Graham County Medical Society make it eminently fitting that we should place upon our records feelings of appreciation of his services and regret for his loss, therefore, be it

Resolved, That this Association will ever hold in grateful remembrance the sterling qualities, the patience, integrity and clear-sightedness displayed for many, many years by our late fellow-member in the work of this Association;

Resolved, That the members of this Association hereby desire to express their sense of bereavement and grief at the loss of one of their earliest, most faithful and worthy members, and to record the enjoyment and pleasure which they have long had in the genial, social, and professional qualities of the deceased.

Resolved, That we sincerely sympathize with the relatives and near friends of our late beloved associate, and that we respectfully commend them for consolation to Divine Providence, feeling sure that to them, as to us, there is comfort in the knowledge that his true worth is properly appreciated.

Resolved, That a copy of these resolutions be properly engrossed and sent to the family of our deceased fellow-member and that the resolutions be also published in Southwestern Medicine.

DR. A. H. NOON

At the regular meeting of the Arizona State Medical Association, held at Nogales, Arizona, May 7 to 9, the following preamble and resolutions were unanimously adopted:

Whereas, It has seemed good to the Ruler of the Universe to remove from us our beloved friend and Honorary Member of Santa Cruz County Medical Society, A. H. Noon, M.D., of Nogales, Arizona, therefore, be it

Resolved, That we hereby extend our deepest sympathy to the bereaved family and friends of the deceased, hoping that even in the sadness of their affliction they may yet find some consolation in knowing that the worth of his private life and the value of his public services are properly appreciated.

Resolved, That a copy of these resolutions be properly engrossed and sent to the family of the deceased.

EL PASO COUNTY MEDICAL SOCIETY

APRIL 13, 1931.

Meeting was called to order at 8 p. m., the minutes of former meeting being read and approved.

Dr. McCamant announced a meeting of the El Paso Game and Protective Association at Elephant Butte Dam, April 18-19. All are invited to meeting and barbecue.

The first paper of the evening, "Toxemias Found in the Prenatal State in City-County Clinic," by Dr. C. E. Rennick, set forth that during six years of this clinic there were 2,375 women who received prenatal care. Of this number 46 per cent showed at least slight evidence of toxemia. Of the total cases 25 per cent showed albumen in the urine with no other symptoms, 10 per cent had only a rise in blood pressure and 9 per cent a mild toxemia. There were 35 women, or 1.5 per cent, with severe toxemia and in this number six cases of eclampsia, 0.2 of one per cent. There were no maternal deaths due to the toxemia of pregnancy. In discussion, Dr. Gallagher stated that he would like Dr. Rennick to tell what, in addition to blood pressure and urinalysis routinely, he considers prenatal care in the office. Dr. Harry Leigh stated that many patients cannot afford extensive routine examinations. Calcium therapy is of some benefit in treating toxemia. Putting patients with high blood pressure on salt-free diet will lower blood pressure in many of these cases. Dr. Rennick, in closing, emphasized that a very important thing in prenatal care is thorough examination at eighth month, to determine presentation.

Dr. Black presented a case of birth dislocation, posterior of humerus. Has no paralysis but limited motion. Rare type of birth injury. X-rays show marked atrophy of head of humerus. Dr. Goodwin, in discussion of treatment, said cause was bad position. Arm was placed across the chest and kept there three months. This should not have been done. Muscles are all good—no paralysis. The best thing is the usual thing—a Z plasty. Give the posterior surface a chance to contract and the anterior a chance to stretch.

The next paper, "Anemias of the Prenatal State," by Dr. Harry Leigh, was discussed by Dr. Rennick, who stated that most Mexican women are anemic. Dr. Gallagher remarked that hemoglobin of 79 is not so low, 85 is not bad, the substantial things are the things the general practitioner should look out for. Dr. Waite stated that liver diet does secondary anemia good in most cases but that plenty of gastric juice and beef will do the same amount of good. Discussion was closed by Dr. Leigh.

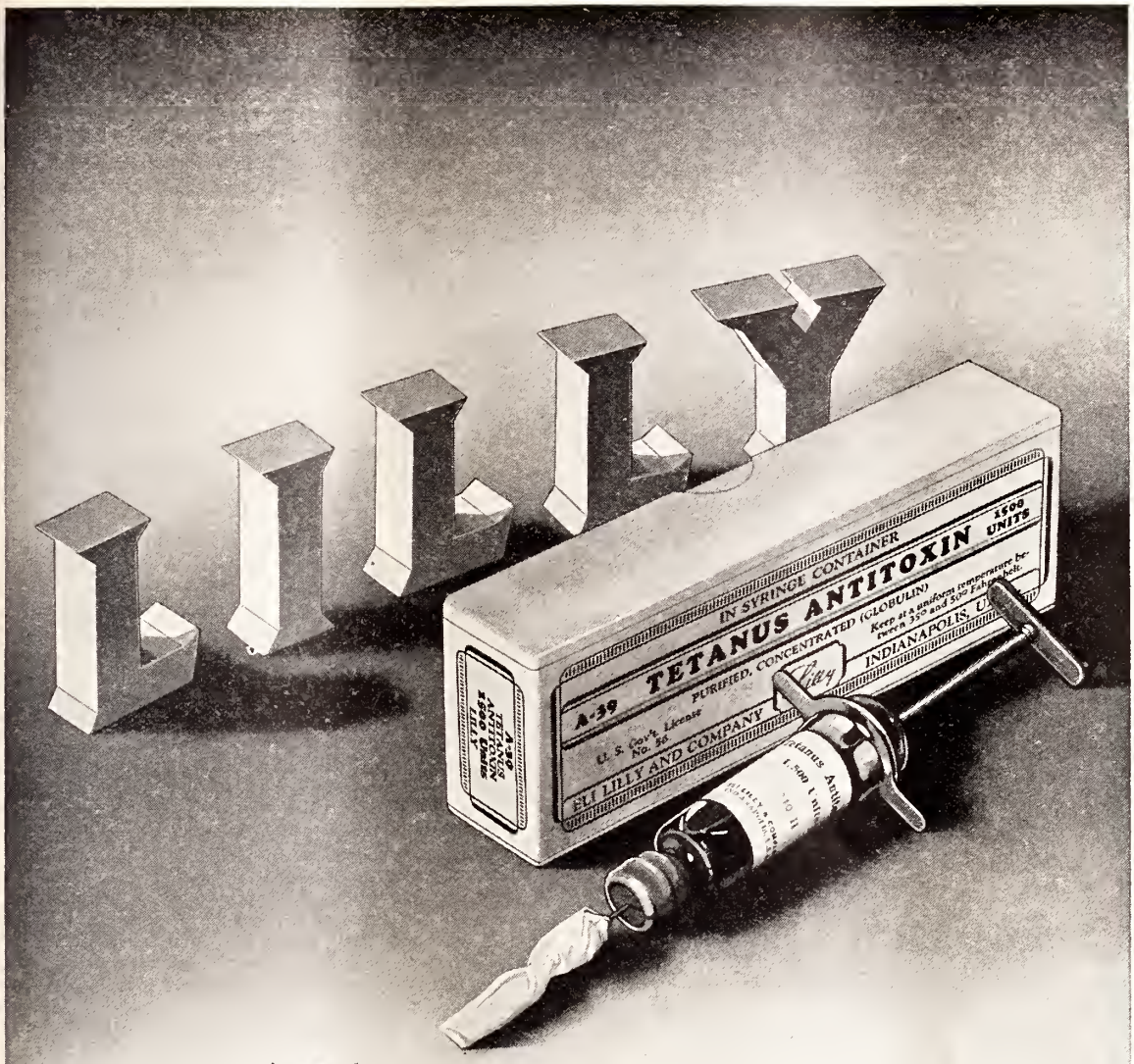
Application of Dr. M. M. Gibson was read and passed.

Dr. Vandevere gave a case report of a man with a piece of beefsteak lodged in the esophagus. Patient was put to sleep and esophagoscope used to remove it piece-meal. Care must be used not to tear the mucosa.

Dr. Cummins reported a case of a woman, 61 years of age, with pain in abdomen, and vomiting; some tenderness over the gall-bladder. Hypo of morphine stopped symptoms but they returned the next day. Duodenal tube passed and lavage given. Later temperature up to 100°, urine showing casts. W. B. C. 14800. Operation advised but refused. preoperative diagnosis, partial intestnial obstruction. Operation showed some blood, abdominal fluid, mass in ileum and intestine flat below. Incision made in ileum and large gallstone removed. Patient doing well.

Dr. Gallagher reported a case of acute appendix ruptured. Symptoms did not indicate a ruptured appendix or even an acute appendix.

RALPH H. HOMAN, Sec'y.



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EL PASO COUNTY MEDICAL SOCIETY

MAY 11, 1931.

The meeting was called to order at 8 p. m., minutes of previous meeting being read and approved.

Dr. W. E. Vandevere presented a clinical case of result of mastoid operation. Had influenza one month ago with left ear aching. Drum was pierced and two days later same had to be done to right ear. Left ear stopped draining after one week but started again and was tender over mastoid. Mastoiditis of left ear and furunculosis of right ear. On April 17, did mastoid operation under local anesthesia. Was able to sit up on first day and go home on fifth.

Dr. F. D. Garrett reported the case of lady with gas disturbance and pain in left side, some tenderness over descending colon. Suspected colitis and diverticulitis, but examination a year ago ruled these out. One month ago had acute pain in left side. Barium enema showed no pockets. Expelled barium and injected air. Several diverticula showed under this method. Patient put on small doses of barium and relief obtained. Another case was reported showing symptoms of cholangitis. While on treatment she developed gangrenous stomatitis. Temperature went down some and condition improved. A bowel movement showed a number of stones as did several subsequent ones. No more trouble has been experienced.

Dr. Bloyce Britton presented a clinical case. Fell off a tractor day before, pain all over his head. Had had a cold for a few days. Examination of sinuses, negative. Gave morphine and ice cap on head. Became irrational and had projectile vomiting. Spinal fluid under greatly increased pressure. 30 c.c. taken off and symptoms relieved but returned. Another puncture showed cell count 1900 with 90% lymphocytes, sinuses cloudy. Became worse. Made a brow incision and got out lots of pus. Spinal fluid culture was positive and case appeared hopeless. Repeated spinal punctures done and frontal lobe abscess drained through frontal sinus. Case got well. Infection was streptococcus mucosus. It is virulent in hard but not so much in soft tissue. Dr. George Turner explained the high cell count by presence of brain abscess. Probably would have had meningitis in few days.

Dr. Gorman discussed and said Dr. Britton was responsible for patient's recovery by operation. He stated that spinal fluid was under a higher pressure than any he had ever seen. Dr. Cummins said that polys are increased in abscess instead of lymphos.

Dr. B. H. Britton presented another case of tumor of the nose, a melano-sarcoma, prognosis bad. He operated under local anesthesia. Stripped up mucous membrane and found pedicle at posterior ethmoid. Used cautery and clipped pedicle. Antrum filled with degenerating polyps. Drained and left open.

Dr. A. W. Multhauf gave a case report of kidney injury in a young man. Fell down hill and when first seen was vomiting and in shock. Mistaken for drunkenness at first, but later blood was found in urine. Cystoscopy showed blood clot at ureteral orifice. Pyelogram showed filling defect in right kidney. Dr. K. D. Lynch discussed the case, saying he agreed with Dr. Multhauf and compliments him on making the pyelogram.

Dr. George Turner said that uroselecton would have been better than the cystoscopic pyelogram.

Dr. Werley presented a case report of calcinosis of legs. Woman had pain and swelling in legs and had x-ray made. Lasted several weeks. Haad enjoyed good health. Pain followed superficial veins to groin. Small nodules felt; tender over these. Arteries normal. Blood calcium low. Nodules proved to be not connected with arteries or veins and were found to be calcium.

Dr. Leslie Smith discussed the case and asked if there was any bone destruction. Dr. J. Mott Rawlings reported an autopsy of extensive calcinosis in man 2½ years. Dr. Harry Leigh recalled a case he showed several years ago of calcinosis. Dr. K. D. Lynch reported a case of stone in ureter of child.

Reports on the State Medical Meeting were made by Drs. W. L. Brown, Harry Leigh and F. P. Miller.

A letter was read from Mr. M. R. Eddy regarding an accounting and collection bureau. Mr. Eddy discussed the letter.

Dr. Miller moved that the letter be referred to a committee for action. Passed, and Drs. Gallagher, B. Britton and F. P. Miller were appointed members of such Committee.

Adjournment.

RALPH H. HOMAN, Sec'y.

PUBLIC HEALTH NOTES FROM NEW MEXICO

(Continued from page 279)

intendent, gave a very complete and interesting report on the "White House Conference."

Dr. James R. Scott led a round table discussion on the "County Public Health Unit."

Dr. Paul D. Mossman, Regional Medical Director, U. S. Indian Field Service, described the organization of public health work among the Indians. Eight nurses and six doctors of the Indian service attended the sessions.

An interesting talk on the history, organization and work of the State Board of Public Welfare was given by Dr. Robert O. Brown, Santa Fe, president of the Board. Dr. Brown expressed the desire of the Board to cooperate with local health authorities at all times.

Mr. F. M. Veatch, of Black and Veatch, consulting engineers, Kansas City, Missouri, described the technic of educating a community in the value of a sewerage system. Without such education, said Mr. Veatch, the voters seldom realize the necessity for providing adequate treatment and disposal of sewage. Once funds are provided for building a disposal plant, the latter is frequently left to take care of itself and the quality of the effluent suffers materially, especially when industrial waste chemicals are admitted to the sewers.

On May 13 the public health nurses section held a separate meeting. Mrs. Susan D. Swarts, R. N., Valencia County Nurse, responded to the address of welcome given by Miss Eleanor L. Kennedy, state supervisor of public health nursing.

A most interesting talk on the "Relation and Coordination of Health and Welfare Bureaus" was given by Miss Margaret Reeves, director of the State Bureau of Child Welfare, Santa Fe.

A business session was held at which time Mrs. Edith Hardy was elected president, Miss Esther Victory, vice president and Miss Eleanor L. Kennedy, Secretary.

Miss Helen B. Fenton, R. N., Guadalupe County nurse, gave an interesting paper on "What a Nurse Should Know About the Public Health Aspects of Tuberculosis." Miss Fenton's paper brought forth much discussion.

At 12:30 the members attended a luncheon at La Fonda, at which time Dr. Earp, state director of health, discussed the need for prenatal and infant hygiene work here in New Mexico.

A round table discussion was of benefit to all. Reports, record forms and individual problems were discussed. This discussion was conducted by Miss Kennedy.

A paper on "Prenatal Work in Rural Public

DIABETIC PATIENTS

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Knox Gelatine helps the physician relieve the monotony of restricted eating because it can be safely prescribed. It is the plain gelatine—free from sugar or artificial coloring or flavoring. It can be freely used and freely eaten, thereby building small quantities of prescribed foods into satisfying bulk.

Knox Gelatine is so valuable to the physician with diet problems that its use is described in a booklet titled "Diet in the Treatment of Diabetes"—written by a well-known authority—and offered in any quantity to physicians who send for it.

JELLIED CHICKEN IN CREAM

(Six Servings)

	Gms.	Prot.	Fat	Carb.	Cal.
1 tablespoon Knox Gelatine	7	6	..	..	..
¼ cup cold chicken broth or water	..	..	..	..	..
1¼ cups boiling chicken broth, fat free	..	..	..	..	..
½ teaspoon salt	..	..	..	..	..
Pinch pepper	..	..	..	..	..
1 cup cooked chicken, cubed	125	24	20	..	..
¼ cup cream, whipped	55	1	22	1.5	..
Total		31	44	1.5	526
One serving		5	7	.	88

Soak gelatine in cold liquid for five minutes and dissolve in hot broth. Season with salt and pepper and chill until nearly set. Fold in chicken and whipped cream. Turn into molds and chill until firm. Serve on lettuce or garnished with parsley and strip of pimento.

CARROT and SPINACH MOLD

(Six Servings)

	Gms.	Prot.	Fat	Carb.	Cal.
1½ cups cooked carrots cubed	210	2	1	19.5	..
1 tablespoon butter melted	12.5	..	11	..	..
1 egg well beaten	50	7	5	..	..
1 teaspoon salt	..	..	..	..	..
1½ cups cooked spinach chopped	300	6	1	7	..
2 tablespoons butter melted	25	..	21	.	..
½ teaspoon salt	..	..	..	..	..
Sprigs of parsley	..	..	..	..	..
Total		15	39	26.5	517
One serving		2.5	6.5	4	86

Mash carrots with a fork and mix with beaten egg and one tablespoon of melted butter and salt. Fill small greased molds half full of the carrot mixture. Season the chopped spinach, add melted butter and fill molds to top with spinach, packing them tightly. Place molds in pan of hot water and bake in moderate oven for 20 minutes. Turn out on hot platter and serve garnished with parsley.

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IF you agree that recipes like the ones on this page will be helpful in your diabetic practice, write for our complete Diabetic Recipe Book—it contains dozens of valuable recommendations. We shall be glad to mail you as many copies as you desire. Knox Gelatine Laboratories. 438 Knox Ave., Johnstown, N. Y.

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Health Nursing Service" was read by Mrs. Margaret Daugherty, R. N., of Harding County. Mrs. Daugherty emphasized the fact that "prenatal fathers" are an important factor in rural prenatal work and that they should have their classes and clubs just as do the prenatal mothers.

Officers for the coming year were elected as follows:

President, Dr. R. H. Wilson, Gallup.

Vice President, Miss Ella Yeager, R. N., Roswell.

Secretary-Treasurer, Paul S. Fox, C. E., Santa Fe.

The next meeting will be held in Carlsbad. Dr. J. R. Earp was elected as delegate to the American Public Health Association meeting in Montreal.

PAUL S. FOX, Secretary.

CASE OF ONE YEAR'S INTERMITTENT EPIGASTRIC PAIN

(Continued from page 275)

abdominal pain or vomiting every month or two. At the end of that time she vomited large amounts of green or yellow material and in six to twelve hours had complete relief and could eat a large meal without discomfort. Toward the end of the attacks her skin was yellow. This cleared up after the vomiting. They insisted that there was no psychicelement in her condition and that she had always borne extreme pain before calling for relief.

June 11 a surgical consultant found the abdomen generally full and tender, the greatest tenderness in the left upper quadrant. No masses were felt, but the examination was unsatisfactory. June 18 an examination was made under spinal anesthesia. Skin anesthesia was complete to the third rib anteriorly with motor paralysis of the lower extremities. The epigastric tenderness still remained as before. The patient could localize the pressure with extreme accuracy. There was an indefinite feeling of something in the epigastrium. During the afternoon the patient was pale, sweating, and slightly cyanotic and complained of much pain and later of severe headache which continued the next morning.

A friend now gave the further history that the patient's attacks had followed one to three day drinking bouts. She had been an excessive user of alcohol for many years until a few months before admission. It was now observed that there had been only five days in the hospital when she had not had some opium, and on four of these she had had fever.

The visiting physician strongly favored operation, and a medical consultant thought the patient able to stand it. The first surgical consultant also advised it. The senior surgeon thought there was nothing to gain from it and possibly everything to lose. The patient was determined to be operated upon, and by the second surgeon. She continued to have severe pain.

June 25 operation was done. The following day the patient died.

Discussion by Dr. J. D. Hamer

From the history on this case, the lungs should show an old tuberculosis, although we know nothing about them from physical examination. The heart should show hypertrophy and dilatation and an old valvulitis with an anatomic leak of the aortic ring. There are sufficient findings to justify a diagnosis of aortic regurgitation. This anatomic defect is probably the result of an old rheumatic process, although it is not so common in this respect as it is with lues or arteriosclerosis. I do not believe the patient has sclerosis as the main pathological finding of the aortic valve leaflets. As to lues, we have no historical or serological data. Laboratory findings do not help us much except to show that the patient has a secondary anemia and a diminution in both free and total hydrochloric acid in the stomach. Many conditions could produce either of these findings, so they do not help us much. The essential pathological condition responsible for the present distress of the patient is located in the stomach or abdominal viscera. Organic disease of the stomach is ruled out by the x-ray findings and by negative blood tests in the vomitus as would occur in cancer. The appendix and gall bladder were removed some years previously. The kidneys seem not to be responsible because of the urine findings and cystoscopy. There is no special evidence of pancreatic disease. The only positive findings in the x-ray examination of the gastro-intestinal tract indicate some condition causing an irritability and deformity of the duodenum. Adhesions, scar formation, with retraction, periduodenal inflammation, or pressure of an adjacent organ could cause this. An enlarged liver from some sort of cirrhosis or congestion could cause pressure on the duodenum. Possibly this patient had an alcoholic cirrhosis, but I do not think so. There should be ascites, enlarged abdominal veins and other findings, if this were so. Has the patient a tumor? It is difficult to say, although the presence of an indefinite mass is suggestive. If one is present, I should say it is near the splenic flexure, but we have not sufficient evidence to warrant a diagnosis. The question of an abdominal aneurism must be considered and could account for all the abdominal symptoms, but I cannot diagnose a condition of that sort here.

Returning to the biliary system, it is quite likely that the true pathology will be found there. She continued to have trouble with her stomach even after the gall bladder was removed. Possibly she formed stones and they passed intermittently, possibly she has an old injured common duct from the operation, with partial stenosis from adhesions or scar formation. In such case, it is likely that she would have these attacks of pain with vomiting. At present she apparently is not jaundiced, although the stools are clay colored. If the stools indicated an obstructed bile duct, the patient should be jaundiced, so I do not know how to account for them. As to a diagnosis, in addition to those already mentioned I am going to have to wait for an exploratory before deciding. When we find that out, we will then know what caused the death.

Discussion by Dr. Howell Randolph

This case reminds me of a sample of modernistic painting in which one can imagine that he sees any number of different concepts. The predominant symptoms point towards gastro-intestinal disturbance. Intermittent pain and soreness in the pit of the stomach not related to meals and associated with definite attacks of vomiting and severe epigastric distress might be caused by abnormalties of the liver, obstructive lesion in the upper gastro-intestinal tract, luetic disease with gastric crises, acute gastritis due to dissipation or cardiac disorder. We have a definite history of tuberculosis from which the patient has evidently suffered no symptoms for nearly twenty years. Gradually increasing dyspnea, palpitation without exertion, definitely enlarged heart, short systolic murmur heard at the base, and blowing murmur extending into the diasole with Corrigan pulse and definite evidence of extreme aortic regurgitation, demonstrate serious degree of cardio-vascular disease. Whether this group of symptoms is primary in causing gastro-intestinal disorder is problematical. A definite history of gallbladder disease which was evidently cured by cholecystectomy many years before and subsequent appendectomy, brings the possibility of adhesions causing obstruction into the picture. Enlargement

CORRECTING AN ERROR

In the Journal of the A. M. A., March 28th, 1931, page 30, we inadvertently stated the iron content of Mead's Cereal to be 68 milligrams per hundred grams. (This figure was confused with .0068 gms. iron per ounce.)

The correct content is 24 mgs. iron per 100 gms. But even so, Mead's Cereal contains —

26% more food iron than kidney

73% more food iron than spleen

100% more food iron than romain

172% more food iron than liver

179% more food iron than egg yolk

These five foods are compared because they are considered highest in food iron.

(Mead's Cereal contains 100 times as much iron as whole milk.)

A well-known pediatrician has drawn attention to the fact that in practice, Mead's Cereal is more palatable and more readily taken by children than other iron-containing foods, some of which are quite unappetizing and even repellent, especially after long-continued use.

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Mead's Cereal also is rich in copper, calcium, phosphorus and in other essential minerals.

of the liver, pain on pressure in the right flank, extreme tenderness over this area, together with history of alcoholism, make one think of cirrhosis of the liver. Moderate degree of anemia strengthens this diagnosis but might also be incident to any wasting disease. X-ray examination of the stomach suggests some disorder in the duodenum not of a sufficient degree to cause an obstruction. Some conditions suggesting the possibility of relief by operation, is present. I am inclined to think that this must have been diagnosed as a malignancy.

In relieving the case I am impressed by the cardiac group of symptoms. It seems likely that this patient does have syphilitic disease of the aorta and this probably has caused enlargement of the liver and gastro-intestinal symptoms.

Aortic insufficiency, cardiac failure, possible aneurism of the thoracic aorta.

Discussion by Dr. D. R. Gaskins

As one goes over the examination of this case he is forcibly struck with the history of a long standing gall-bladder and liver involvement with a terminal superimposed decompensated cardiac condition. X-ray examination of the abdomen reveals a mass of some type encroaching upon the stomach but no history of gastric pathology is given. I am very much of the opinion that this is some foreign pathology making itself manifest by a slight degree of pressure. The thing to bear in mind in explaining this condition is possible aneurism of the abdominal aorta, enlargement of the spleen or slight enlargement of the liver. As this patient approaches the terminal end of her illness we get a definite history of excessive alcoholism so we are naturally forced to think of portal cirrhosis of the liver which in its earliest stages presents more enlargement. However all this history is over-shadowed by a marked cardiovascular disease, so we must naturally look to this condition for reason of death.

With the pistol shot pulse and Corrigan phenomenon we first think of aortic insufficiency. We, therefore, wish to make a diagnosis of cardiovascular disease with the pathology definitely an aortic insufficiency with possible aneurism of the abdominal aorta, with beginning cirrhosis of the liver.

Discussion by Dr. R. B. Raney

The outstanding features of this case include a typical pain in the epigastric region referred directly to dorsal regions and into costal margin of either side; this suggests primarily pancreatic disease. There is a wide range between systolic and diastolic pressures which, along with other findings, would indicate vascular cardiac disease, and one would not be surprised to find an aneurism along the aorta. No Wasserman reaction is mentioned; however this type of aortitis is usually luetic in origin and would not be an uncommon finding in a subject leading the indiscrete life which this patient has. While we cannot rule out cancer of the pancreas, there are not enough positive findings in urine, blood, etc., to establish it. It is hardly possible to discuss a case history in 500 words with any degree of logic. However, there are positive evidences of old pulmonary tuberculosis, as well as positive findings of a vascular-cardiac lesion and it would not be unusual, in fact well in keeping, to find an aneurism of the upper aorta, which would produce the type of pain described.

Discussion by Drs. Richard Cabot and George W. Holmes

I suppose if we read only the opening paragraph we should say peptic ulcer. But we should certainly have to add that peptic ulcer would never last only three days. It would last longer.

By a "griping" pain I suppose we generally mean a pain that comes with peristaltic rhythm. If it comes at regular intervals it would seem to be related to the movements of the gastro-intestinal tract. So I suppose this pain was intermittent at regular intervals.

As one reads along this gradually changes from a gastric to a cardiac history. But it is rather hard to say how that could give this sort of symptoms. Of course gall bladder adhesions could give some sort of symptoms. I do not know that they can be altogether ruled out. But she has at present more cardiac than gastro-intestinal or gall bladder symptoms.

Of course the tuberculous episode is important, because tuberculosis is one of the important causes of dyspepsia and indigestion of various kinds. It does not seem to me, however, as if tuberculosis could be causing this. At the present time, previous to reading the physical examination, I am looking to cardiac disease as the probable cause of her symptoms.

The pulse pressure, if the record is correct, and I have no reason to doubt it, would go very far to give us a diagnosis of aortic regurgitation.

It seems to me we have every reason to suppose that the tenderness in the right flank is due to the liver,—congestion and pain because of it.

I think costovertebral tenderness is a term that means very little. You will find that you can produce it in almost any normal person. The tendon reflexes were a little more active than usual, I take it.

There is no good evidence of renal trouble so far as the urine shows it.

There is secondary anemia which we must somehow account for and which aortic regurgitation in itself will not account for.

The test meal shows low acidity but no achylia. I do not think we have any good evidence against the stomach.

It is rather surprising that the stool should be clay-colored, there being no jaundice.

With a negative liver function test, we have nothing in particular to say against the liver.

DR. HOLMES: In the examinations of the gastro-intestinal tract the fluoroscopic observations are usually much more important than the films. We have here a series of films taken to show the spine. The only thing that I can see that is at all unusual is that there are some small white spots which I should suppose were calcifications in the costovertebral region. You can also see a calcified area in the anterior view between the ninth and the tenth dorsal vertebrae. Such a localized area of calcification is usually due to some trauma with injury to the disc. It may have no bearing on the present condition.

DR. CABOT: Are those calcifications ever of any importance, Dr. Holmes?

DR. HOLMES: They might occur in tumor, but we should not be able to make a diagnosis of tumor from the presence of calcifications. I think they are important in deciding whether the patient has had an injury. They would not be positive evidence. We have quite a series of films taken of the stomach. You see the normal gas bubble in the fundus of the stomach, the mid-portion of the duodenum. The peristaltic waves are fairly well shown as they pass over the stomach. I should think from those films that the stomach and duodenum are normal. Of course we are not justified in making such a statement from the films alone. In this other film of the stomach the duodenum is better shown. It

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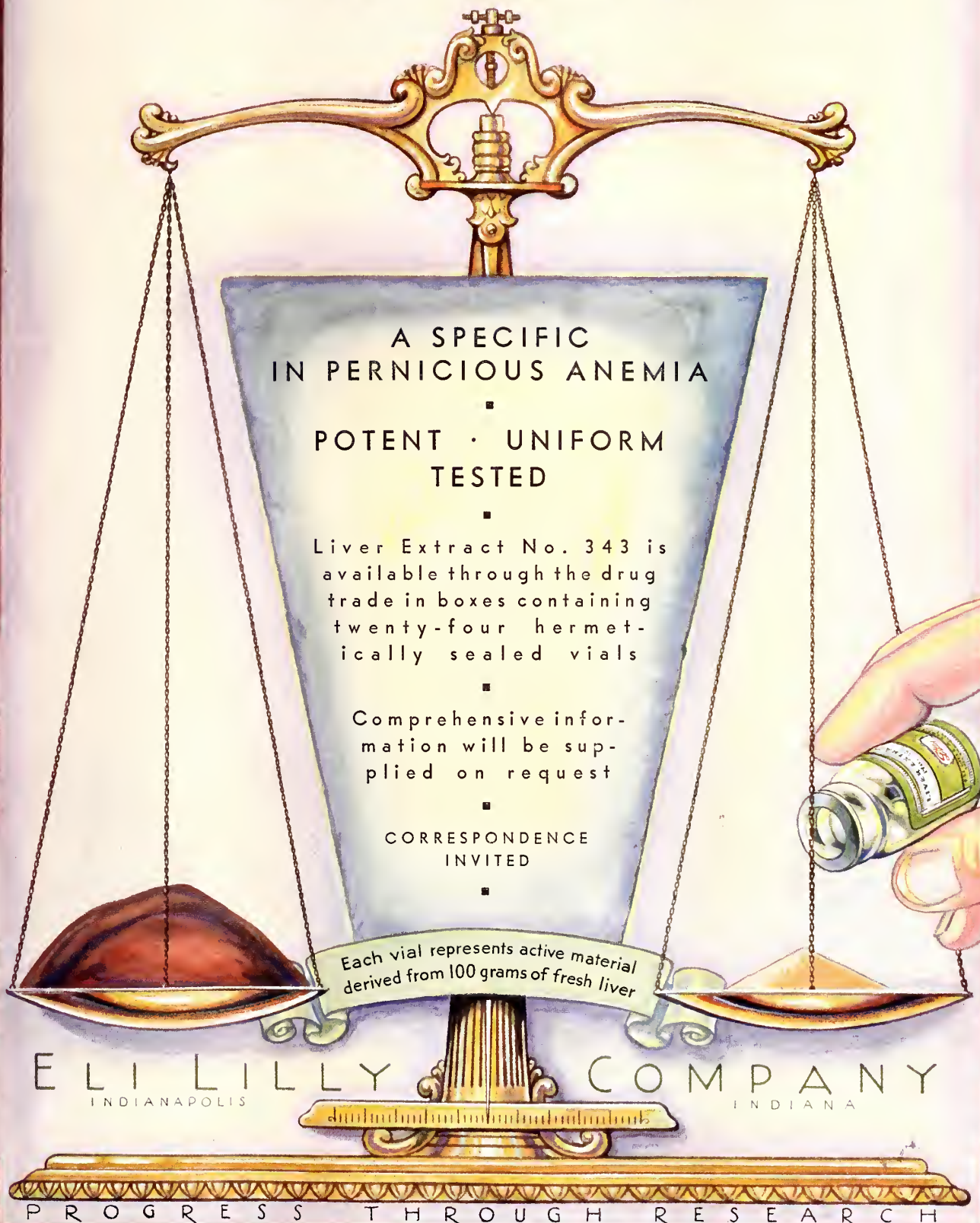

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Internist

is smooth and of normal shape. It is hardly possible that there could be an ulcer of any size present. The man who did the fluoroscopic examination was evidently a little uncertain about the colon. From these films I do not see anything that would lead to a diagnosis of a pathologic process.

There is here in the right iliac fossa a contracted area that is not inconsistent with carcinoma, but there is no evidence that that is constant.

I think if there were a new growth producing such a deformity as we see there the man who did the fluoroscopy would have no trouble in finding it, and there would be obstruction with a growth of that kind. We have none of those things here. I should call it a negative examination.

DR. CABOT: Up to date we have first-rate evidence of aortic regurgitation, pretty good evidence of congested liver and not much evidence of anything else. Doesn't that fluoroscopic note show a very unusual state of things, Dr. Holmes?

DR. HOLMES: I think it is merely stated in an unusual way.

DR. CABOT: What about that displacement of the esophagus?

DR. HOLMES: That happens occasionally. Whenever the left auricle is large it displaces the esophagus. I think that is what we should expect.

DR. CABOT: Then the evidence is not merely of enlargement of the left ventricle but also of enlargement of the left auricle, which I should not have predicted.

Whether that was jaundice or just sallowness that she showed at the end of her attacks we cannot tell.

We see that they had evidently been wondering whether there was a considerable psychic element in this patient's complaints. They tried to get evidence in confirmation of that and did not get it.

DIFFERENTIAL DIAGNOSIS

Before we know what the operation showed we have to say what the preoperative diagnosis would be. I am very much in doubt. I do not believe aortic regurgitation would account for all this pain. But what does account for it? I cannot name anything. Certainly I do not believe it is the stomach. I do not believe such continued pain as this without any particular relation to meals ever comes from a gastric ulcer, and the x-ray would rule that out. The gall bladder? There are a number of things that make us think of that. But I do not know how we can have pain of this kind with the gall bladder removed. My guess is that adhesions about the gall bladder was what the surgeon thought. I think he operated for something in the gall bladder or something due to it, very possibly adhesions. Stone in the pancreas the x-ray does not help us to rule out, does it, Dr. Holmes? One clay colored stool is not evidence of trouble in the pancreas. Stone in the pancreas is a very hard diagnosis to make. I do not think I ever made it right. However, I do not know how to exclude it. We have no reason to blame the spine. Dr. Holmes is evidence against that. Her drinking habits might suggest cirrhosis. I do not know any other disease of the liver that would give us such symptoms. But there is no portal obstruction. Syphilis of the liver she might have, but that is not a painful disease. Malignant disease of the liver or of the bile ducts? Very possibly; but we have no evidence beyond pain, and it is very dangerous to make a diagnosis on pain alone.

As you remember, one surgeon did not think there was anything to operate upon. "Adhesions or nothing," he thought. I imagine that was the reasoning of the first surgeon. Another said, "This patient wants an operation. We do not know much about the diagnosis, but there may be something to remove." I should say it was an operation done for exploration with the possibility of adhesions. Are there any other suggestions from the class before we look?

A STUDENT: How about gastric crises of syphilis?

DR. CABOT: That is a good idea. So far as I know the symptoms would be right, except that they are a little too continuous. We have no other evidence that I know of for syphilis except aortic regurgitation. We have no Wassermann report. I do not know why. I cannot exclude syphilis. As you know, I am always slow to make a diagnosis of syphilis without compelling evidence. We have

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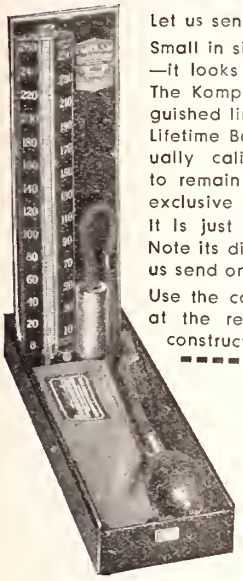

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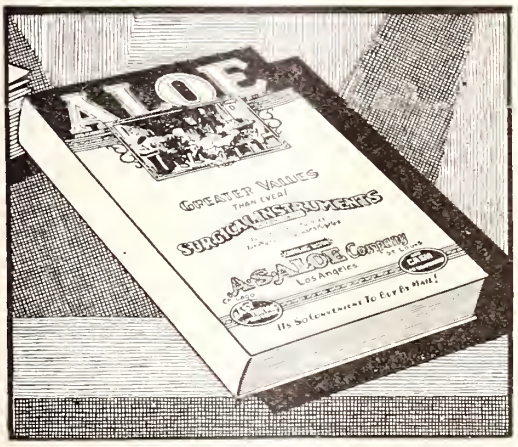

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no evidence of it in the nervous system. We may have evidence of it in the heart. If it is that in the heart the pain perfectly well could be gastric crises so far as I know. It is about as good a guess as anything else.

PREOPERATIVE DIAGNOSIS

Localized peritonitis.
Possible perforation of the stomach.

OPERATION

Under ether a rounded resistance was felt in the epigastrium. The abdomen was opened with marked edema of the peritoneum. There was some free fluid lying over a mass of adhesions between the duodenum and the liver. The right lobe of the liver was felt, engorged and enlarged. Both the right and left lobes were swollen and rounded like passive congestion. On freeing the adhesions between the duodenum and the liver a small tear was made in the duodenum from which a small amount of yellow gelatinous material escaped. This opening was sutured and the exploration continued. No lesion was found in the stomach or duodenum. There was no evidence of malignancy. The liver was abnormally large. Its condition and the overlying edema seemed to be due to passive congestion. The incision was closed without further exploration.

FURTHER DISCUSSION

DR CABOT: "Possible perforation of the stomach." Can that exist with such films as these, Dr. Holmes?

DR. HOLMES: I think not. In most perforations there is some free gas in the belly, and we should get gas between the liver and the diaphragm.

DR. CABOT: We know she has aortic regurgitation. We have to find what kind, rheumatic or syphilitic. On the whole I am going to say rheumatic. She had had an attack of rheumatism. That is much more common than the syphilitic type. We have no good evidence of syphilis anywhere. The enlarged left auricle makes it quite possible that there is a mitral lesion too, even though the clinical evidence is not put into this record. It cannot amount to much if we consider the jump of the blood pressure from 20 to 160, which is hardly consistent with much mitral lesion, because there is so little blood coming through a stenosed mitral valve that the left ventricle could not contract violently enough to produce such a systolic pressure. If there is any mitral lesion it should be slight, hardly to be considered. There will be hypertrophy and dilatation of the heart. So far as the x-ray goes it looks as though it were the left ventricle and the left auricle. We have no electrocardiogram. The kidneys will show nothing, the lungs nothing. The liver may be cirrhotic, but they did not find it so at operation. They certainly had a good chance to look. I do not know what else there is. I do not think there is anything else except congestion of the liver. Perhaps we shall never know the cause of her pain.

CLINICAL DIAGNOSIS

Rheumatic heart disease with congestive failure.

DR. RICHARD C. CABOT'S DIAGNOSIS

Rheumatic heart disease, aortic stenosis and regurgitation.
Hypertrophy and dilatation of the heart.
Chronic passive congestion of the liver.

ANATOMIC DIAGNOSES

1. **Primary diseases.**
   Aortitis, probably syphilitic.
   Acute and chronic endocarditis, rheumatic and syphilitic.
2. **Secondary or terminal lesions.**
   Chronic passive congestion of the liver.
   Central necrosis of the liver.

Pathologic Discussion by Dr. Tracy B. Mallory

The autopsy brings some surprises. The one outstanding anatomic lesion was the most extensive acute luetic aortitis that I have ever seen. Histologically the process is typical of syphilis and does not suggest rheumatic aortitis. The heart was slightly enlarged, weighing 425 grams. The aortic valve showed very slight fibrosis and slight separation of the cusps; there may possibly have been slight regurgitation. The mitral valve showed a few minute verrucose vegetations but no chronic lesion. There was no marked degree of deformity of any valve. The orifice of the right coronary artery was definitely narrowed.

Many adhesions around the bed of the gall bladder and the duodenum were still there. I do not believe the surgeon succeeded in freeing very many of them. There was marked chronic passive congestion of the liver and a very slight degree of central necrosis. I have no proof as to what caused her pain, but the findings in the aorta make me think of gastric crises more than anything else. It is not entirely impossible that those attacks of "cholecystitis" and "appendicitis" may be explained on the same basis. I have never seen such extensive aortitis due to rheumatic fever. It can cause aortitis, but it does not produce such extensive destruction of tissue, and the cellular infiltration is different in character and distribution. The mycotic type of aortitis can also be readily distinguished, and I feel I can rule it out in this case.

DR. HOLMES: Is it confined to the thoracic aorta?

DR. MALLORY: Largely, though about four centimeters of the upper abdominal aorta was also involved.

DR. HOLMES: Was the aorta dilated?

DR. MALLORY: Somewhat diffusely dilated. The process began just above the valve, which was slightly involved.

THE WOMAN'S AUXILIARY TO THE A. M. A.

(Western District)

MRS. JAMES F. PERCY

As my division in the organization work covers the states of the far west, branching to the middle states only to include Nebraska, this panorama will begin there. We have been enjoined for so many years to "Go West," it has now become a favorite direction of travel.

Nebraska is always up and doing and a survey of activities of 1931, shows an extensive distribution of the National Auxiliary Study Envelope on "Communicable Disease Control"; much welfare work, especially providing professional visiting nurses for public schools in various counties and definite organization of county relief work at a great saving to the county commissioners. Here indeed is a far-reaching benefit for the community-at-large in a practical, economic way. Benefits are held to procure funds for completing files of scientific books and magazines and research work of the pathological laboratory connected with the Sharp Building Library at Lincoln. The Auxiliaries' scientific educational programs contain many important names, these together with social and philanthropic activities keep everyone interested, useful and happy. One new county auxiliary has been reported as a last gift to this administration.

Colorado has kept up the interest aroused during the National Presidency of Mrs. F. P. Gengenbach

of Denver, particularly with spreading ideas of good and better health through the use of literature in the less populated districts. Included with this, Study Envelopes have been used and a greater field developed for approved health programs in other organizations. Growth in numbers has not been sought so much as growth in achievements.

Wyoming must be passed as having been silent to all requests for even a hint as to its status. Geographically, Wyoming and Utah are difficult of organization but within the few years that lie ahead, they are certain to be caught in the vibration already swinging its way throughout the land and they cannot long be resistant to its call, we are sure. Utah has already given expression through her women visiting other states, that she is ready to take action to further a properly organizzed auxiliary.

New Mexico, with but one county, Bernalillo, organized and far from all centers of activity, has been an inspiration by their efforts to follow the National precepts. Unless one has traveled the great spaces of the deserts of the southwest, no conception of its distances can be formed. This one county has taken up Child Welfare work, sale of Tuberculosis Seals, enjoyed programs from their medical men, County Charities' Chairman, County Health Nurses and State Director of Public Health and carried the social activities of the State Medical Convention. They are few in numbers, but verily the leaven quickeneth the whole loaf.

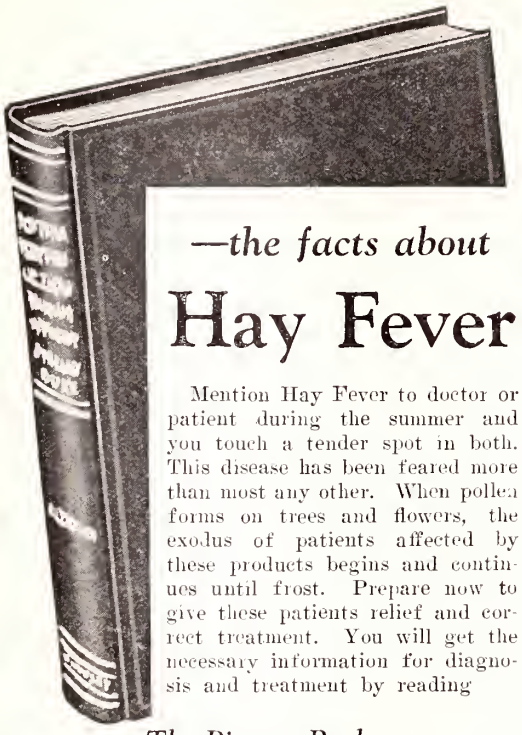
Arizona has trebled its units from one to three but has found organizaiton work difficult due to distances. Social features have prevailed unless some definite need has loomed in the offing, such as the Basic Science Bill, for the passage of which the State Auxiliary made great effort. In a state so filled with cults the passing of the Bill by the Senate was a real achievement, even though it was finally held up in Committee. However, nothing daunted, the members are now aroused to the possibilities and usefulness of an auxiliary and experienced women are stepping forward, willing to serve and assist in making an active, worth-while organization.

California has been concerned, aside from organization, with establishing itself upon a permanent foundation through a proper Constitution and has been able to do this with the full support of the California Medical Association, who are printing these Constitutions as a gift to the State Auxiliaries.

At the recent State Meeting, held in San Francisco, April 27-30, 165 women registered, with 55 delegates and 115 women seated at the annual luncheon. The Auxiliary now feels safely established and on its keel.

The keynote of each county report was education but the social side, welfare work, Red Cross, changing the position of a State Senator, creating sentiment for a Tuberculosis Sanatorium, local philanthropies, all had their places with the scientific programs. A chart "The Technique of Following a Bill Through the Legislature' provided a most unique, striking and valuable object lesson of information as to what we are all up against in our legislatures and their procedure. This subject is highly recommended to all organizations.

A resolution was introduced and adopted and directed to the National Committee on the "High Cost of Medical Care," asking for a change in the name under which the Committee functions to one more in accord with the facts they are studying, namely: "The High Cost of Illness or Sickness." The original name implies some fault of the medical profession, while the proposed name is inclusive of all the various factors involved in the problem. A copy has been sent to the National Auxiliary



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asking their indorsement of said resolution at the Philadelphia Convention. The California Medical Association are presenting a similar resolution to the House of Delegates, A. M. A., whose membership now closely approaches 900.

The interest shown and the friendliness in the social life at this Convention demonstrated a new order which we hope has come to stay.

Oregon has chiefly concentrated upon organization work and revival of general interest this year, through providing the units with a list of suggested study topics to encourage a similarity of subjects. Portland has monthly meetings with speakers who use the material contained in the Study Envelopes and are extending their educational and philanthropic interests as well. Temporary organization in one county is hoped to soon become permanent, thereby increasing their number and justifying the work of the state officers.

Washington is showing great interest to become organized and after considerable correspondence, it has been deemed best to have the primary action come through the State Medical Meeting which takes place soon after the Philadelphia Convention. We feel it is safe to prophesy that Washington will be on the list of organized states for our successor.

Idaho is listed as an organized state but as all letters have remained unanswered the panorama must end here.

To those who were fortunate enough to attend the National Meeting at Philadelphia, no further stimulus will be needed.

Each state will be eager to carry out the aims and ideals of the parent organization.

We learn from those who have achieved, and in Pennsylvania the accomplishments of the Auxiliary, together with their complete plan for the National Convention, will give a wide understanding of a still greater organization and insure a generally more important reocgnition in the days to come.

PANORAMIC VIEW OF THE WOMAN'S AUXILIARY TO THE A. M. A. IN FOUR ARTICLES

3. SOUTHERN DISTRICT.

Mrs. C. W. Garrison.

The third or Southern District of the Woman's Auxiliary to the A.M.A. may not have moved so rapidly as regards the number of Auxiliaries organized as the other sections but the quality of those existing have proven them to be of the greatest value in promoting the aims of the national body.

Alabama reported three counties organized last year, and is particularly interested in a health program giving especial attention to children with a tuberculous condition. The group visited in Birmingham were alive and interested, and had the cooperation of their Medical Society.

Arkansas reported thirteen counties organized, all giving attention to a health program and trying to raise an adequate loan fund for medical students only. Some of the counties contributed obstetrical kits for use in the rural districts. Many of the Auxiliary members in Arkansas are devoting much time and energy to the Parent-Teacher work and are aiding in the various civic and welfare organizations. All will be gratified when the State is organized 100 per cent.

Florida, large areas of which are sparsely settled, has ten auxiliaries. Some of these are composed of a combination of two or more counties. Proof of the quality of these groups was seen when a large medical organization and its auxiliary were entertained in Miami in 1929, Mrs. J. Ralston Wells, the little woman who now heads the State Auxiliary, furnishes further proof of their aliveness and interest. Florida with her marvelous fruits, flowers, vegetables and her wonderful sunshine, has just as wonderful and marvelous women in her Medical Auxiliary.

Georgia, which has given to A. M. A. Auxiliary one of its most efficient presidents, Mrs. Allen H. Bunce, has more counties than any other state of its size and has twenty-one of these organized for Auxiliary. They have the full approval and cooperation of the State Medical Association, and having attended their State convention in 1929, the writer will vouch for the fact that no national meeting is more replete with interest and enthusiasm than were found in Georgia, nor have we found anywhere a greater desire to foster the aims and purposes of the national body. No group of women can possibly have greater courtesy, interest and encouragement shown them and their work than is given to the Georgia Auxiliary by the medical men. Mrs. Harrold will bring from her state a goodly report.

Louisiana reports only two parishes organized. Taking into consideration the fact that one of these two auxiliaries has a greater enrollment than have some whole states, makes us feel that Louisiana will not be far behind in the number of parishes when her final report of accounting comes in. She is not lacking in interest in any direction because the president of the State Auxiliary, Mrs. Harrold, is of the type who says "We will."

Mississippi reported four auxiliaries last year, and again we are able to speak with assurance of our expectations from this state. The president of the State Auxiliary attended the meeting in Detroit and returned to her state carrying with her additional enthusiasm and determination to gather into the fold more county organizations. This dream will come true. Mrs. Polk was the first to respond to our first circular letter. She has the approval and encouragement of the medical men of her state to go forward.

We may expect to hear of more interest, as well as more auxiliaries in North Carolina. Mrs. W. B. Murphy is the President of this great State, and though we have before us no report for last year, we do know of their interest in the past and believe we may hear the number five at least doubled in their next report.

South Carolina shows thirteen counties organized, and Mrs. Mauldin was prompt to reply with assurances that better things are ahead for next year.

Mrs. L. M. Sackett now leads the one Auxiliary reported from Oklahoma, and we feel certain that others will be added before June.

On invitation from its President we had the pleasure of meeting with the Davidson County Auxiliary in Tennessee early in October, and found a splendid group of women earnestly desiring to serve in the most useful way. We found as a member of this Auxiliary the State President, Mrs. Milton S. Lewis. While only four auxiliaries are reported from Tennessee, they are the counties in which the largest cities are located. The distances are great between, but with the known interest and enthusiasm of the two counties visited, Davidson and Shelby, we are assured that Tennessee will bring to the next National meeting a report filled with accomplishments which tend to fulfill the aims and purposes of the Auxiliary.

While we were not fortunate enough to meet with the Texas Auxiliary, we did have a little visit with the energetic and charming president, Mrs. O. M. Marchman. Texas, the mother state of the Medical Auxiliary as it is now recognized, has thirty-five County Auxiliaries, and with a live, interested organization chairman such as Mrs. J. T. Moore is

proving herself to be, others will be added before the next State meeting in May. Texas Auxiliaries have earnestly promoted a health program, always working shoulder to shoulder with the fine progressive men of the Medical Association who, in turn, endorse the Auxiliary movement, and are unstinted in encouragement to further development of the organization.

At this time the minds of the Third District are directed towards the Keystone State and the City of Brotherly Love, and many are hoping to be wesding their way to Philadelphia in early June that they may partake of the feast of inspiration and absorb the spirit of Auxiliary. Pennsylvania and her neighboring states have grown so marvelously that all are now anxious to sit at their feet and learn. This, the third districe, is anxious to contribute its quota of honor paid to the medical men in whose interest we serve, and so it is with high anticipation that all plans are being made to be present at the annual meeting of the A. M. A. June 8-12, 1931.

Editor, Southwestern Medicine:

At the completion of a course in pathology for the class of nurses in the St. Joseph's Hospital Training School of Phoenix, an examination was given and one of the requirements was that each student write a short theme of not more than five hundred words on the subject of tuberculosis, covering the bacterial cause, how infections occur, most common sites of infection, and how spread over the body. One of the students submitted her theme in verse and it is handed you as a very unique form for so prosaic a subject. Aside from a few inaccuracies, which might be checked off to poetic license, it very satisfactorily covers the subject.

H. P. MILLS, M.D.

SONG OF THE TUBERCLE BACILLUS

We, like the pirates of old
Seeking new ventures, and bold,
We are invaders.

Into the lungs we invade,
There a grey nodule is made
Called a tubercle.

Thus we begin,—and so
Similar growths we grow,
Matastasizing.

Throughout the body we spread,
We, the bacilli stained red,
Spreading infection.

And when resistance we meet
We do not beat a retreat.
Nay! We lie dormant.

Covered by fibers or lime,
We lie—biding our time,
Seldom impatient.

Sometimes for years we remain
Waiting, but seldom in vain,
Our opportunity.

Oft adolescence's the time
We up the battle-hill climb
There to besiege.

Bang! go the nodules of grey,
They no longer can stay
Further invasion.

Soon, then, the body grows thin,
Coughing and hemorrhage begin,
Cavities grow.

When we the bloodstream avail,
Over the body we sail,
Wearing down barriers.

Even bone tissue we slay,
Fighting for us is now play—
Yea, we have conquered.

Sunshine alone we dread,
Fresh air, food, rest in bed,
These are our foes.

We, the bacilli stained red,
Fight till the body is dead;
Then it is ours.

We, like the pirates of old
Seeking new ventures, and bold,
We have invaded.

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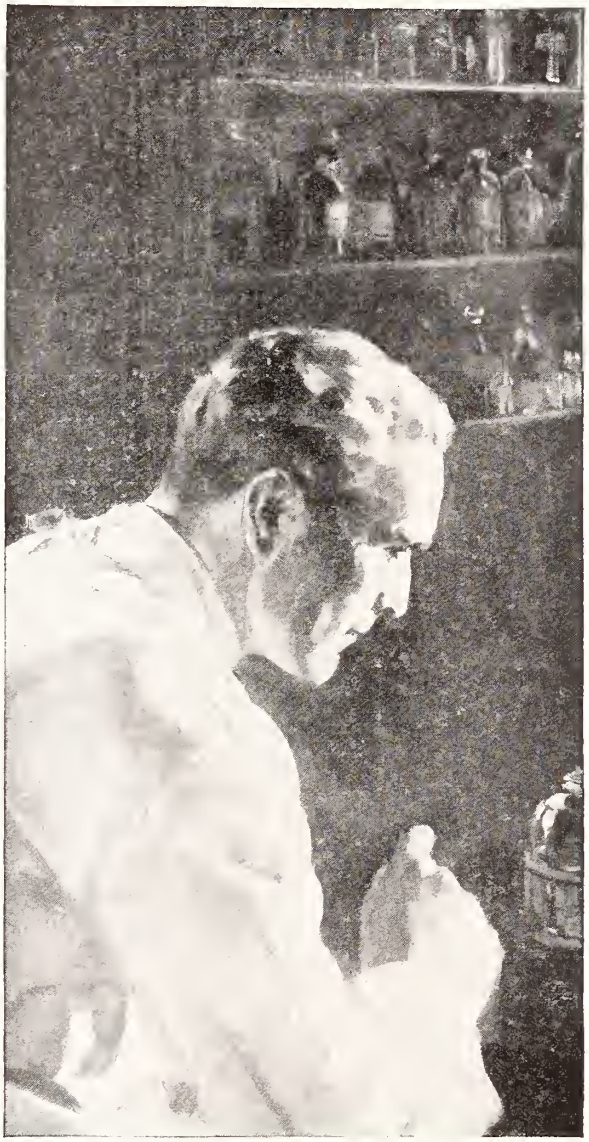

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Volume XV July, 1931 No. 7

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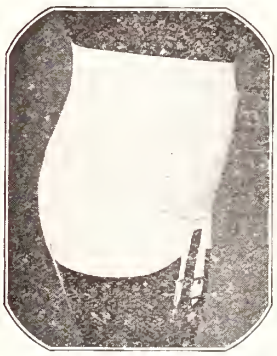

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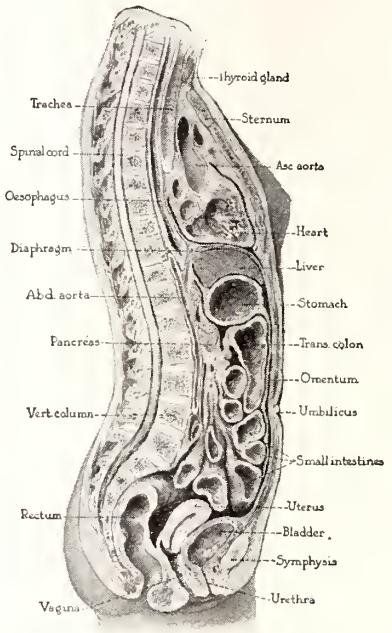

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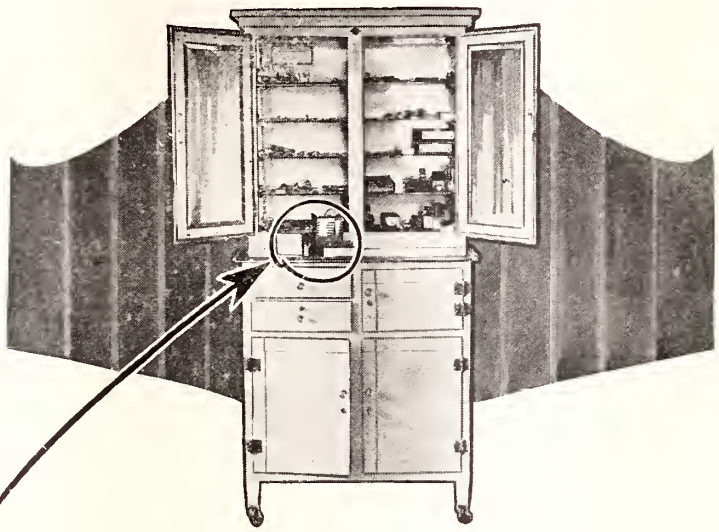

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(President's Address)
NEW MEXICO STATE MEDICAL SOCIETY

M. K. WYLDER, M.D., F.A.C.P.,
Albuquerque, N. M.

(Delivered to the forty-ninth annual meeting, held at Albuquerque, N. M., May 20 to 22, 1931.)

While we have made great progress in medicine, there are some things that change not. From time immemorial it has been the custom at medical meetings for the President's Address, instead of discussing medical progress, to depart from that field and give a philosophical dissertation on some phase of medical economics. It is assumed that the president of a medical society is a man of broad experience and mature judgment and therefore his address takes a course somewhat between that of fatherly advice and a philosophical sermon.

State medicine and medical legislation are two subjects that are discussed freely in presidents' addresses. State medicine is the big bogey that is staring us in the face at the present time and I presume that before we are through we will have it in some form. They have tried it in several countries and a great many people who cannot distinguish change from progress, feel that we should try it in this country. In the time allotted me, I could not begin to pay my respects to state medicine, so I will pass that by.

Medical legislation is another subject that has been worn threadbare. I wonder if we do not make a mistake in bothering with medical legislation at all, for we are misunderstood; when we endeavor to protect the public unselfishly, they think we are actuated only by selfish motives. The mentality of the average member of the legislature is such that he cannot conceive of our being actuated by anything but selfish motives, when we are really trying to protect the uninitiated.

The task of educating legislators is surely a Herculean one and were we successful in educating the legislators and getting them to realize the importance of protecting the public to the point that human lives would not be turned over to the care of people whose time spent in the preparation for their profession is less than the time required to train a good barber, we would still have the governors to work on and the average governor is of the type somewhat like they say of the Harvard man,—"You can tell a Harvard man anywhere, but you can't tell him much." I believe as far as legislation is concerned, we would do better to go ahead, put our own house in order, do our work honestly and conscientiously and wait patiently until an enlightened public demands some protection themselves.

I believe, however, that we owe a great deal to the cults and should perhaps let them alone for they do two things for us, by their activities: they stimulate us to better work and once in a while, they do discover a grain of wheat in many bushels of chaff and regular medicine does now and always has, gladly, and I might say, anxiously, appropriated any beneficial measure that has been brought out from any source. Homeopathy taught us to modify the enormous doses that were in vogue a hundred years ago; the electric taught us to give more attention to the relief of symptoms; the osteopaths, while working on a false premise, developed some methods that have been adopted by the physiotherapists and the christian scientists have emphasized the cultivation of optimism, hopefulness and cheerfulness. So, I have chosen to talk today, more upon some of the things they do not teach in medical schools. Do not misunderstand me and think I am

finding fault with our medical schools. The progress that has been made in medical education in the last generation is almost inconceivable, however, I wonder if we are not getting to be almost too scientific, or I would not say too scientific, but, in becoming ultra-scientific, we are becoming less practical. It is an open secret that there is constant warfare in every medical faculty today, between the laboratory man and the practical man, with the laboratory man winning at every turn. Naturally, the laboratory men, all being full-time men, devote their entire thought to the teaching work; the practical men, many of them, besides teaching some of the things they know and use in their every day work, make their living down at the office and thus do not have the time for thinking and planning for the school and curriculum.

One professor of medicine, who had held that chair in three of our great universities, wanted his students to be able to spend a little more time than they were in the wards, had the temerity to insist that he be given these students for more time to take them through the wards and let them see some sick humans, but the laboratory men insisted on keeping them in the laboratory stimulating frogs, experimenting with serpents, insects and chickens when, he argued, they might be studying human beings, somewhat as Lowell put Cromwell's soliloquy when contemplating flight to the Colonies or fight with King Charles I. He says:

> "And what should we do in the small Colony of pinched fanatics who would rather choose, Freedom to clip an inch more from their hair, than the great chance of setting England free?"

This professor, of whom I speak, quit teaching and engaged in private practice and he has since told some of his friends, he never knew there was so much money in the world as he is able to make since he quit teaching.

Thus, medicine lost a great teacher and his boys will become a rich man's sons instead of the sons of a poor professor. I mention this because it is more or less typical of what is going on in the various universities, as members of the teaching force in different schools have openly admitted our schools teach a great deal of anatomy, physiology, chemistry, biology, pathology, history, diagnosis and treatment of disease, stressing all the while the disease. This is all well and good, but should we not also teach psychology and devote time to the study of human nature? For our success or failure rests more largely on our ability to understand and manage our patient than any other one thing and, that ability to understand people is the turning point in any business or profession. It is said of Rufus Choate, one of the greatest lawyers of his day, that he could talk to a jury and by watching closely their facial expressions, tell when he had won them to his views and, it might be said of any physician who has become great, that he did so because he understood people.

Are we losing sight of the Patient? We study disease; we think disease; we think in terms of pathology and forget that the greatest variable in the whole question is the patient. What we are concerned with, is not so much the disease, but the reaction of the disease on this particular patient and we all react in a different manner. For instance, you can take a solution of some foreign protein and inject one drop into the skin of four different individuals. In one you will get no reaction at all; in another you will get a slight reddening of the skin; in the third you will get a fair sized wheal and perhaps in the fourth you may get a large bleb, a general urticaria, an attack of asthma, a gastro-intestinal upset, a severe allergic reaction. Our mental reactions vary just as much as our physical. You may go down the street, engage in an argument with four different individuals. In the course of argument with each one, use that short and ugly word "liar". One of these men, placing no value on your opinion whatever, will not be ruffled in the least and simply grin; a second will retort you are another, and a third will knock you down and give you a good thrashing and a fourth will carry a grudge and resolve at the first opportunity to do you "dirt." The individuality of the individual is the thing we must consider.

What then does a patient want and what motives actuate him to consult a physician? It may be that he is suffering pain and it always is that he is worried. He wants relief from some thing that is bothering him. He is discouraged. What does he expect when he consults a physician and what does he want to get? It seems to me the first thing he wants to do is tell you his story, tell you what is worrying him, tell you what troubles him and, as Sir William Osler said, "If you let your patient talk long enough, he will tell you both what the trouble is and what he thinks will cure it." At least he wants to tell his story to a sympathetic listener. Besides that, he wants a study of his condition, sufficiently searching that he feels you have gone far enough into his case to find out what it is that is bothering him. After he has gone that far and has told you the things which seem to be troubling him and you have examined him and made a

searching study of his case and he feels you now have enough information to understand him and to know what the trouble is, he wants to hear from you. It may be he does not care for any treatment; he may simply be worried; he may be afraid, as a great many people are, that he is developing a cancer, (since the lay magazines are discussing so much the danger of cancer we have a great many mental cancers to contend with) and he may want to be assured, if there is any possible way of doing so, that he has no cancer or that he has no other insidious condition developing of which he need be afraid. Each year more and more people are coming in for a careful examination and what they want is to be assured that, so far, there has been no break in the machinery. If your patient is suffering pain, he wants something to relieve that pain, but more than anything else and more than everything else he wants encouragement. I think most of our patients come to us on account of being discouraged about something than any other one thing and I do believe that we, as medical men, should give each patient a careful examination, listen to his story and find out as near as humanly possible what is the trouble with him, direct and advise him, but above all else we should encourage him.

We should think in terms of the patient and not in terms of pathology and disease, for after all, our entire thought and study is for the benefit of the patient. But, many times we become so enthused over our work that we lose sight of our objective, as a man being shown through a new, modern teaching hospital and was shown this for the benefit of the nurses, that for the benefit of the students, this for the benefit of the doctors, that for the benefit of the visitors and when they got all through, he innocently asked "and what for the benefit of the patients?" In their anxiety to benefit every one, they had lost sight of the very ones for which the hospital had been built.

So let us keep ever before us the patient. Let us study him carefully, think of his needs, his troubles, his worries; take a sympathetic interest in the whole problem; encourage and comfort him and if we do that we will have nothing to fear from medical legislation or state medicine. We will enjoy our work and will find that it gives us not wealth, but as President Elliott has put a fine phrase, it does give "The durable satisfactions of Life."

THE SPECIFIC TREATMENT OF PULMONARY TUBERCULOSIS

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(Read before the Fortieth Annual Meeting of the Arizona State Medical Association, held at Nogales, May 7-9, 1931.)

The ultimate object of medical science is the prevention of desase. Until this can be accomplished, the profession must needs devote a large amount of time and attention to its second most important objective—the discovery of a specific cure for each individual disease.

Specific has been defined as "a remedy having a definite curative action in relation to a particular disease or symptom, as genuine in relation to malaria." In this sense the use of the remedy is not necessarily limited to the disease or symptom in question. Quinine has a beneficial effect in other diseases than malaria, although in no other are its effects so striking and so uniform.

The word specific has a second and more limited significance when we refer to the specificity "manifested in the relation . . . of an antibody to its antigen, or the reverse." We use the word in this more limited sense when we speak of diphtheria antitoxin as a specific cure for diphtheria. In this class of cases the use of the remedy is confined to the one disease.

In this paper the word specific will be used in the former and broader sense of a remedy having a definite curative effect in tuberculosis, but whose use is not limited solely to the treatment of that disease.

In the past half century a stupendous amount of work has been done in the field of tuberculosis. In the whole history of medicine no other disease has been studied so extensively and intensively. So striking and important have been the discoveries by laboratory workers regarding the nature and action of the tubercle bacillus and the reaction of the body tissues to infection with this organism, that they have very largely overshadowed the quieter, less spectacular work of hundreds of clinicians, in every civilized country, on the treatment of the disease tuberculosis. So much is this so that the rank and file of the medical profession have apparently not yet begun to realize that in the past twenty years a remedy has been discovered which is as specific in its effects in pulmonary tuberculosis as is quinine in malaria, and which is almost, if not quite, as effective as is antitoxin in diphtheria. If the medical profession will use this remedy as it now uses antitoxin in diphtheria, the in tuberculosis as early and in as heroic doses

results will be just as striking and almost, if not quite, as favorable.

Before proceeding to discuss this remedy in detail, let us remind ourselves that even diphtheria antitoxin will exert its full beneficial effect only in the very early stages of the disease. Leading authorities state:

"Early administration of antitoxin is urgently advocated in any case where there there is membrane in the throat and where there is a suspicion of diphtheria. With eace day's delay in giving antitoxin, the danger from diphtheria increases alarmingly. The earlier the remedy is administered, the more certain and rapid is the effect. In cases of any severity where diphtheria is suspected, and in cases of croup, it is far better to administer the remedy at once, making a culture at the same time, than to delay the treatment until a diagnosis has been made by bacteriologic examination. The first injection should be large enough to control the disease. The intravenous method of injection is used entirely for severe and septic cases. Laryngeal diphtheria causes the greatest number of deaths. Sixty per cent of the cases admitted as croup require intubation and intubated cases under three years do very poorly; over three years the percentage of recovery is 70 to 80."

THE SPECIFIC REMEDY

It is now about twenty years since rest in bed began to be advocated as a valuable remedy in pulmonary tuberculosis. At that time our ideas regarding its indications were very vague; our knowledge of its dosage was extremely limited. After a quarter of a century of careful, painstaking observations in large numbers of cases, we are just beginning to realize how really specific this remedy is in its actions, and when and in what doses it should be used.

Nearly thirty years' experience in the use of rest in bed in the treatment of all forms of tuberculosis has convinced the writer that it will effect a clinical cure in an extremely large percentage of all cases of pulmonary tuberculosis, if administrated in the early incipient stage and in large doses. It will not cure large numbers of cases of widely-spread miliary tuberculosis; but when the disease has become definitely localized in the lungs, rest in bed, if used early, will effect a clinical cure in a very high percentage of all cases.

Not only so, but this same remedy will produce a clinical cure in a majority of cases of moderately advanced pulmonary tuberculosis, if properly administered for some considerable time. Even in far advanced cases with marked cavitation, rest in bed will effect permanent improvement and a return to a moderately useful life, in quite a large number of cases, if used in large doses and over long periods of time. Has antitoxin proved any more effective in diphtheria?

ADMINISTRATION

When should rest in bed be used in pulmonary tuberculosis? The initial dose of rest in bed should be administered just as early in pulmonary tuberculosis as the first dose of antitoxin is given in diphtheria. In other words, when the symptoms are strongly suspicious, do not wait for a positive diagnosis. Administer your remedy at once and make your definite diagnosis later. Put your patient on rest in bed under careful observation until the diagnosis can be definitely confirmed. So far as the death rate is concerned, pulmonary tuberculosis is a much more deadly disease than diphtheria. If the physician who fails to administer antitoxin early in diphtheria is guilty of gross carelessness, the one who does not give rest in bed early in pulmonary tuberculosis should be convicted of criminal negligence.

DOSAGE

In what dosage should rest in bed be used in pulmonary tuberculosis? Unfortunately, the word used to designate this remedy is one which has been in use in common conversation in the English language for several centuries. For this reason it is most difficult to limit its significance in a specific scientific sense. Consequently we have found it necessary to qualify the significance of even the phrase "rest in bed" by the use of adjectives.

As soon as even a tentative diagnosis of pulmonary tuberculosis is made, every case should be immediately placed on, at least, "fairly complete rest in bed." This means that the patient is in bed more than twenty-three hours a day, being allowed up only for bathroom privileges. He has all meals in bed and has bed-baths. If, at the end of a week, his highest temperature is not below 100 degrees, or if he has a persistent, disturbing cough, he should be put on "complete rest in bed," which means twenty-four hours in bed every day, with use of wash-basin, bed-pan and urinal.

If at the end of a month there has not been some improvement in the condition of the lungs and in the blood picture, even if there has been a noticeable improvement in the general condition of the patient and in his symptoms, he should be put on "absolute rest in bed," which entails the constant attendance of a special nurse, who feeds the patient and prevents any unnecessary movement in bed, even in the use of the sputum cup.

Note well that in any phase of this regime it is not enough that the patient be in bed, he must rest in bed. Even in fairly complete rest in bed, where the patient is allowed bathroom privileges, he should lie flat in bed relaxed for at least one hour in the middle of the forenoon and should have at least two hours of complete relaxation, lying flat in bed and if possible asleep, in the middle of the afternoon. Nothing should be permitted to interfere with the patient's rest. If the cough disturbs, he should be given codeine. If his digestion is impaired, his diet should be carefully regulated, and, if necessary, vitamins or digestive medicines administered. If he is restless by day or sleepless by night, bromides or some other hypnotic should be given for short periods. Encouragement and other forms of suggestion are very valuable means of inducing rest.

DURATION

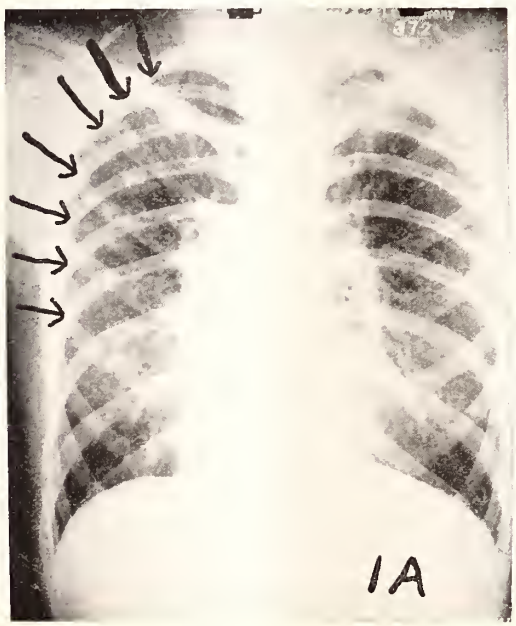
Over how long a period should rest in bed be continued and in what dosage? When the proper dose of rest in bed has been determined in each individual case, as outlined in a previous paragraph, that dose should be continued until repeated, careful examinations show neither symptoms nor signs of any active disease in the lungs, and until the scar tissue is hardened to a considerable extent. It is not enough to have the patient free from all symptoms—elevation of temperature or pulse, cough, expectoration, loss of weight, and so forth. In addition, physical examination, stereoscopic x-ray films and blood picture must all show definitely that all lesions in the lungs are healed over and that the scar tissue interlacing and surrounding the lesion is no longer soft and permeable. Then, and then only, should in-increasingly smaller doses of rest in bed be prescribed. If, after several weeks of carefully graduated partial rest in bed, careful examination discloses neither symptoms nor signs of active disease and shows thicker and harder scar tissue, very carefully graduated walking exercises should be prescribed.

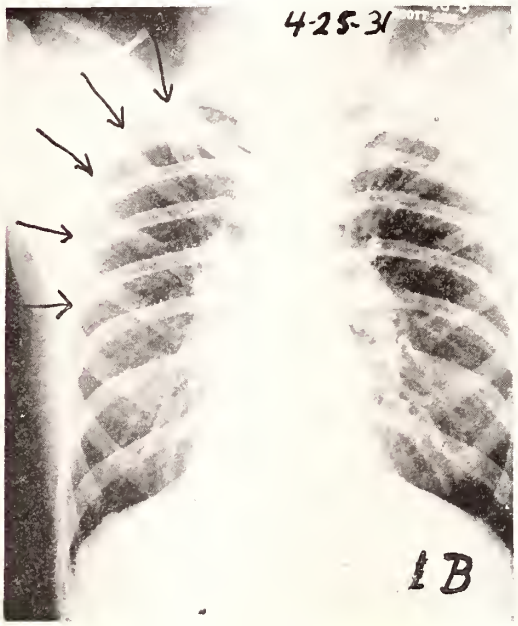
PREVENTION

Not only is rest in bed, when properly administered, a specific remedy in the treatment of pulmonary tuberculosis, but it is an invaluable aid in the prevention of this disease. If rest in bed in proper dosage could be administered to every case of active, pulmonary tuberculosis, there would be very few cases of far-advanced pulmonary tuberculosis at the end of a generation, thus eliminating, to a very large extent, massive infection in childhood. One-third of a century later the mortality from tuberculosis would be insignificant and its morbidity in adults very small.

CONCLUSIONS

The solution of the problem of pulmonary tuberculosis in man is very largely in the hands of the general practitioner—the man engaged in the general practice of medicine. It is to him the patient comes when this disease is in its incipiency and it is by him the treatment can and must be administered, if the ravages of the disease are to be quickly controlled. The research workers and clinicians who have been limiting their work to the study and treatment of pulmonary tuberculosis, have discovered a specific remedy for this disease. The remedy and the





technic of its administration are easily within the reach of every physician. Responsibility for the clinical cure and the ultimate prevention of pulmonary tuberculosis now rests squarely on the shoulders of the medical profession. All that remains is for physicians to apply it properly.

ILLUSTRATIVE CASES

Case 1. Male, age 22 years. Had a suspicious illness at 14 and was sent to the mountains for six months at 18. Active tuberculosis of lungs accidentally discovered in March, 1921. Very few symptoms. Physician advised sanatorium treatment. Instead, patient spent a year and a half living very quietly in summer and winter resorts of California. Gained 20 pounds in weight and felt fine. Examination in September, 1930, showed spread of disease. Referred to us October 1, 1930.

Lung condition October 2, 1930. (Figure I. A.): Left lung; infiltration with fuzzy edges from apex to upper border of 7th rib and 10th V. S. Area suspicious of cavitation beneath the clavicle; right lung, infiltration from apex to first interspace, fuzzy edges.

Put on "fairly complete bed-rest" (23 hours a day in bed, meals in bed and bed-baths; up only for bathroom privileges). In a few days all symptoms disappeared. On same routine until May 1, 1931. Seven months in all.

Lung condition April 25, 1931 (Figure 1. B). Left lung area suspicious of cavitation in left apex cannot be seen; infiltration areas discrete and hard. Right lung, infiltration areas mostly discrete.

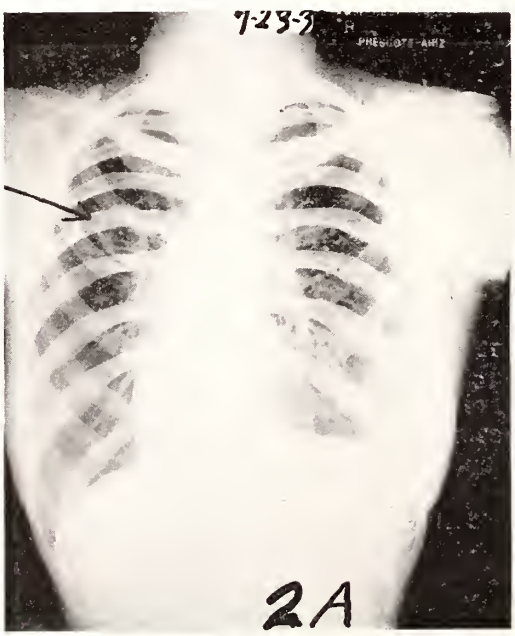
Now getting rest in bed in constantly decreasing, carefully graduated doses, that is he is being allowed to sit up for increasing periods each day on a very carefully graduated schedule.

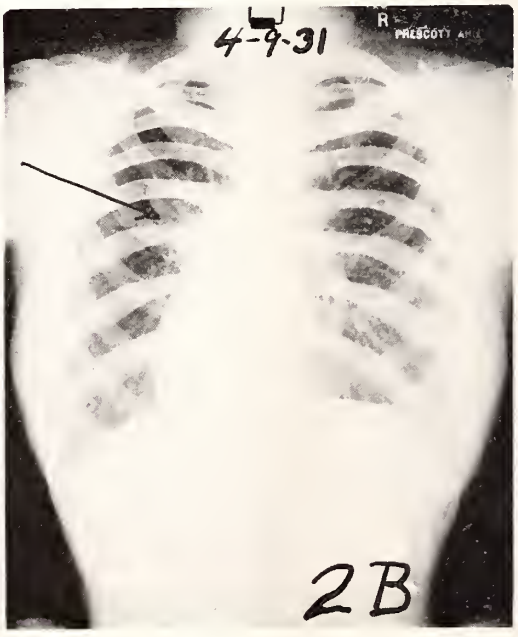
COMMENT

In our opinion the lesions in this patient's lungs are now healed over and the scar tissue is no longer soft and permeable. If his exercise is carefully controlled for several months, the scar tissue will grow thicker and harder and he will very likely make a good clinical cure. What a pity he had not taken his physician's advice and gone to bed eighteen months before he did! He wasted at least two years of his life, to say nothing of the risk he ran of losing his chance of a good recovery. Better still, if this lung had been given proper rest in bed and subsequent care when he was sent to the mountains at eighteen, it would undoubtedly have prevent ed his present prolonged illness.

Case No. 2. Female, aged 26 years. History of repeated colds for nearly ten years, but general health fairly good until April, 1930, when she developed persistent cough. Continued to work hard until a definite diagnosis of active pulmonary tuberculosis was made June 25, 1930. Entered sanatorium July 3, 1930, complaining of severe cough, dyspnea, general soreness in left chest and excessive fatigue. Sputum abundant and containing tubercle bacilli. The x-ray films taken at that time have been lost, but physical examination showed an active lesion in the left lung extending from apex to 4th rib, with a shower of fine moist rales in the second interspace just above what seems to be a small cavity lying outside of the hilum on this side. numerous fine and medium moist rales after cough in left interscapular space and some pleural rales in left base. An old healed lesion in the upper part of right lung.

She was placed at once on "fairly complete rest in bed" and responded very promptly. By latter part of September 1930, the cough had completely cleared and there was practically no sputum. At that time stereo x-ray films showed (Figure 2A) an area of decreased density suggestive of cavitation in the second interspace on the left side immediately in front of the seventh vertebral spine, measuring 3x2 cm. not surrounded by a very firm wall. Reaching out from the hilum into the second, third and fourth interspaces the linear markings are increased with small areas of fuzzy densities along them..

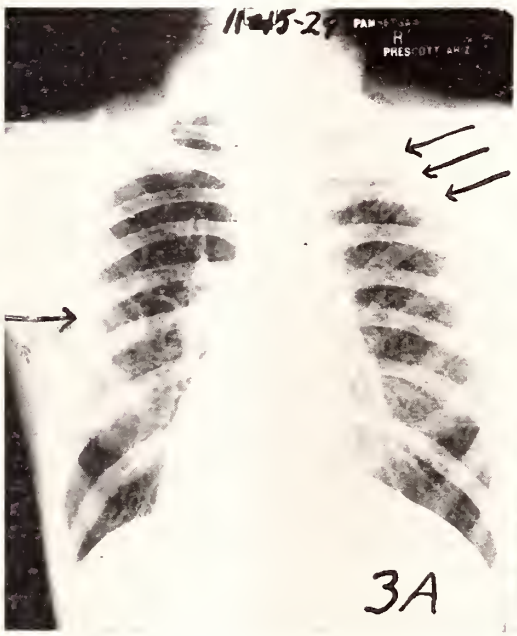


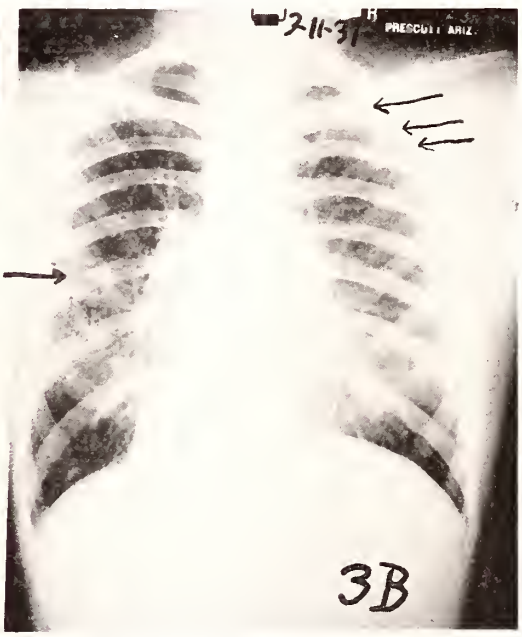


Examinat on on November 5th showed very little change. Only a slight increase in the amount of scar tissue. At that time much against our better judgment we were induced to allow this patient to sit up for very slowly increasing periods each day. She made indifferent progress until early in January, 1931, when she had a very slight hemorrhage. We placed her at once on absolute rest in bed under the constant care of a special nurse. She again responded very promptly. In a very few weeks all symptoms had again completely disappeared. On April 1931, x-ray films (Figure 2B) showed that the area suggestive of cavitation in the upper left lung had quite cleared up, and that the scar tissue had begun to appear hard.

COMMENT

This patient will remain on complete bed rest for another month or two and then will be placed on partial rest in bed and later on very carefully graduated exercise. She should make a good clinical cure. What a pity we had not known enough to put her on absolute rest in bed when she first entered the sanatorium. It would have saved her several months of very valuable time. Better still, if she had had proper rest in bed ten years ago, when she first developed repeated colds, or even in April, 1930, (instead of June, 1930) what an amount of time and expense could have been saved!





Case 3. Male, 28 years. Health began to fail in 1925, six years ago. Chills, fever, sweats; very little cough; much aching; marked pleurisy left side. A few months later glands on both sides of neck swelled and developed a skin lesion. Traveled all across the continent and was treated for all manner of diseases, including maralia and hyperthyroidism. Cervical glands broke down; were opened and discharged for 18 months.

Three years later (in 1928) diagnosis of tuberculosis was made at the Crile Clinic and sanatorium treatment advised. Home physician disagreed. Operated on glands on both sides of neck. Used stock vaccine and autogenous vaccine from patient's sputum.

In 1929 came to Arizona and diagnosed chronic malaria and sent to hot springs and later to dude ranch. In August, 1929, examined at Mayo Clinic and again diagnosed tuberculosis. Entered sanatorium October 1929.

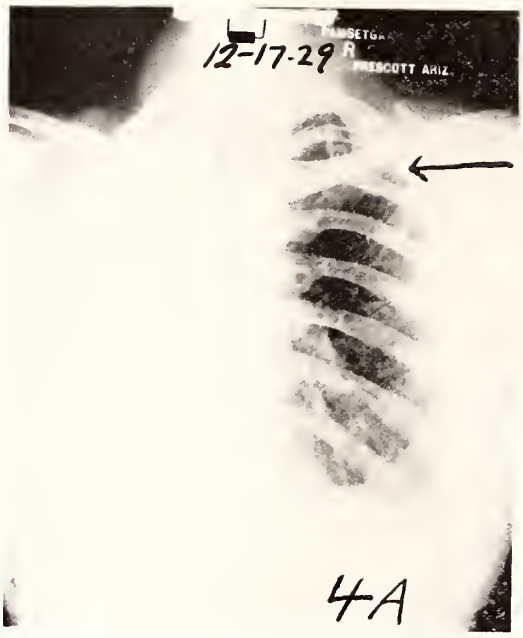
Films exposed at Mayo Clinic, August 9, 1929, showed tuberculosis of the right upper lobe with two cavities and tuberculous involvement of the upper left lobe with a single cavity. Films exposed November 15, 1929, (Figure 3A) showed a cavity in the right lung in the first interspace, one interspace in diameter, and cavity of same size in the second interspace. In the left lung a cavity 3 cm. in diameter in the posterior axillary line from the upper border of the seventh rib to the lower border of the eighth.

Patient was placed on "fairly complete rest in bed" with a careful diet and very carefully graduated sun baths to all the body except the chest. He soon began to improve very slowly.

In December, 1930, that is after 14 months' treatment, the glandular condition was completely healed over. X-ray films exposed March 11, 1913 (Figure 3B). Right lung, the two cavities in the right apex have entirely disappeared and cannot be seen; left lung, lying immediately beneath the eighth vertebral spine in the posterior axillary line is a well defined cavity 2 cm. in diameter. It is smaller by 1¼ cm. in diameter measurement than on Nov. 15, 1929.

COMMENT

This patient will be continued on his same schedule of rest in bed and partial sun baths. The probabilities are that the left lung also will heal completely without artificial compression. What a pity this patient did not accept the advice given in 1928 and get "rest in bed" treatment. Better still, what a pity a definite diagnosis was not made in 1925 and "rest in bed" administer-



ed properly! This would have saved him at least five or six years of disability and expense.

Case 4. Female, age 29 years. Active tuberculosis first diagnosed in 1928. In bed two months. Afterwards up and around but in poor health. Entered sanatorium July, 1929. At that time there was soft infiltration in the right lung from apex to the second rib with a cavity shadow smaller than a dime in the second interspace. It was difficult to interpret the x-ray films of the left lung, but physical signs strongly indicated extensive multilocular cavitation. This patient was placed on "fairly complete rest in bed" and soon began to improve slowly. At the end of six months (December, 1929) (Figure 4A) definite cavitation had taken place in two areas in the upper part of the right lung; one immediately behind the first rib (2 cm.) and another immediately beneath it, in the first interspace (3 cm.). Outside of these two areas, there had been a marked clearing up throughout the upper part of the right lung, the infiltration having become clear-cut and discrete. There seemed to be some clearing in the left lung which was less opaque, especially over base.

A year later (December, 1920) (Figure 4B) the cavities in the upper right lung had disappeared. They appear to be contracted to the small area of increased density now lying immediately beneath the first rib and clavicle and third vertebral spine. The edges of the infiltration in the upper right have become clear-cut and discrete. There was no essential change in the left lung.

COMMENT

This patient will continue on "fairly complete bed-rest" for a few months more until the scar tissue around the former areas of cavitation in the upper right becomes thicker and harder. Then some form of artificial compression will be used on the left side. We will propably attempt an artificial pneumothorax. If that is not successful we will consider phrenic neurectomy. The probabilities are that an extensive thorocoplasty will be necessary to completely heal the left lung. What a pity prolonged rest in bed had not been used in 1926 when she was first taken ill!

DISCUSSION

DR. SAMUEL H. WATSON, Tucson. (opening discussion): Whenever we have Dr. Flinn on our program, we are assured of a good paper. This paper of his was not only good, but it was a most unusual presentation of one of the cost important problems in medicine today.

I dare say that not a man in this room has even thought of "bed rest" as being a specific in the cure of pulmonary tuberculosis, and yet, as Dr. Flinn has so plainly told you, it is just that, properly used. It is about time we had such a paper to jolt us out of our lethargy of absolutely unjustified self satisfaction. I am inclined to think that too many of us who are treating this disease have been "lulled to sleep," so to speak, about the seriousness of it because of the reports we read each year of the constantly diminishing death rate. Twenty-five years ago we were told that in any city of the United States of one hundred thousand population we had 220 deaths from tuberculosis. Now for the same sized city we have decidedly less than half of that number, about ninety in round numbers. We say a drop from 220 to 90 is some accomplishment in a quarter of a century in a disease so serious that it was at that time counted the most serious of all chronic diseases in its fatal results. We called it then the "Captain of the Men of Death." We don't call it that any more. We hear that it has fallen to fifth or sixth place as a cause of death, that heart disease, pneumonia, cancer and so forth, far outstrip it now. But I want to call your attention to the fact that most of our decrease in mortality from tuberculosis in the past twenty-five years, has not occurred in pulmonary tuberculosis, nor in the important age period when this disease mostly occurs. Please, don't forget that in the period of twenty to forty years of age, pulmonary tuberculosis is still the "Captain of the Men of Death," and causes one out of every four or five deaths that occur. If this be true, and I assure you that it is true, if pulmonary tuberculosis is the most curable serious disease in the world today, as

some of us know it to be, if we have such a simple specific cure as Dr. Flinn has suggested, then there is something wrong with the doctors that treat this disease.

I want to say now that I agree with every word Dr. Flinn has to say in his paper except his suggestion for the solution of the problem. Dr. Flinn said "The solution of the problem of pulmonary tuberculosis is largely in the hands of the general practitioner." I want to speak in defense of the general practitioner in this connection, in fact, I want to compliment the general practitioner for the advance he has made in the handling of his tuberculosis cases over the last twenty years. He is making constantly earlier diagnoses in his pulmonary cases, and taking better care of those he treats. But he is constantly treating less and less pulmonary tuberculosis, he is turning more and more of them over for treatment to the tuberculosis specialist. It is to the latter and not the former we must turn for the solution of this problem. He is mainly to blame because he does not use bed rest as Dr. Flinn has told you it must be used to cure this disease. Talk to the average chest specialist, ask him what he thinks is the most important thing in the treatment of this disease, and his answer will invariably be—rest, but ask him for details as to how he carries out his rest program and you will usually find that his patients are loafing, or at the best spending most but not all (every minute) of their day in bed, seldom indeed bed resting as completely as they should be, unless the patient happens to be so sick he prefers to stay in or cannot get out of bed. To sum up then: here we have the most curable chronic serious disease in the world today. We have a specific cure "bed rest" but the mortality is still appalling. How are we to overcome this? My answer is: by insisting that the tuberculosis specialist learn what rest really means and accomplishes in this disease, then get him to use it and to cure his patients will be easy. If every such specialist could be made to start using BED REST tomorrow as Dr. Flinn uses it, the solution of the problem of pulmonary tuberculosis would soon be accomplished.

DR. CHAS. BROWN, (San Diego): Stated that many of the cases seen by them suffer greatly from laryngeal tuberculosis. They have found that these can be relieved by the application of trichloracetic acid directly to the lesions.

DR. F. F. MILLER (Miami): Stated, in substance, that their great difficulty was in securing the cooperation of patients for prolonged periods of rest. Most of the cases of tuberculosis observed by them are in families of workers and it is economically difficult or impossible for them to go to bed for long periods of time. While not taking issue with the correctness of Dr. Flinn's statements, it is not always easy to carry out ideal rest programs.

DR. JOHN W. FLINN (closing). I had no thought of unkindly criticism of the man in general practice. To me he is the backbone of the medical profession and occupies the most important and most honorable position in our profession. My thought was that pulmonary tuberculosis is such a widespread disease that it is quite impossible, for a tithe of the cases, even, to have the services of a specialist. Therefore the general practitioner must needs acquire expert knowledge of pulmonary tuberculosis, and it is to the tuberculosis specialist that he should look for expert advice. To me it has been a very great satisfaction to have a physician of Dr. Watson's standing concur so fully regarding the importance of rest in bed in the treatment of pulmonary tuberculosis.

In replying to Dr. Miller, I have no remedy to acid has a good effect in a certain number of cases of laryngeal tuberculosis is because it relieves pain and gives the patient both local and general rest.

In repllying to Dr. Miller, I have no remedy to offer for the patient who is not financially able to take the rest treatment. This is, of course, the tragedy of the situation. But conditions in this respect are certainly improving from year to year.

It is not, however, hard to make a patient realize the seriousness of his condition, if the physician is rather brutally frank with him at the first examination. In my opinion it is criminal not to be absolutely frank. The very life of the patient depends on his being told that unless he follows directions implicitly he cannot and will not recover his health. With especially obdurate patients it is much better to tell them frankly that they will surely die in a comparatively short time if they do not give themselves the intensive care outlined. Absolute frankness with the patient is the key to the situation. Unless you are very frank with the patient, you cannot gain and retain his confidence. Without the patient's full confidence and cooperation it is extremely difficult to treat pulmonary tuberculosis successfully.

A STUDY OF INTESTINAL TUBERCULOSIS

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(Read before the fortieth annual meeting of the Arizona State Medical Association, held in Nogales, Arizona, May 6th to 8, 1931.)

Ancient and modern medicine alike have recognized the occurrence of intestinal tuberculosis as a complication in pulmonary tuberculosis and, until recently, alike regarded its manifestations as precursors of the fatal termination of the disease. In recent years, however, due to a method making possible the earlier diagnosis of the disease, modern medicine, as in other fields, has been enabled to assume an aggressiveness toward this complication which has reduced its status from that of the incurable disease to that of a serious disease frequently cured and, except in the near terminal type, practically always susceptible of improvement.

Credit for this changed attitude should be given Stierlin, whose observations concerning the changed physiology of the colon in the presence of ulceration were the first given to the medical world. Also to Pierie who, acting upon the suggestion of Archibald, examined and reported on several patients referred to him because of suspected intestinal tuberculosis. His observations led him to practically the same conclusions reached by Stierlin. Also to Stewart, pupil of Brown and Sampson, who has frequently and ably given the medical world the results of his studies and researches. Perhaps most credit is due Brown and Sampson, whose work has placed medical practice in relation to intestinal suberculosis upon a basis as to diagnosis and treatment compar-

able with other chronic and serious diseases long treated with fair success.

Due, no doubt, to the hopeless outlook in this disease for centuries, the medical profession has been slow to acquaint itself with the principles and technic of the early diagnosis of intestinal ulceration, as evidenced by the answers received in answer to a questionnaire sent to over a score of recognized leaders in the tuberculosis field in America. Answers received from those acquainted with and using this method were enthusiastic as to their belief in its accuracy and the results of treatment.

TECHNIC

The technic employed in these studies was modeled after the Brown-Sampson technic which has for its purpose an x-ray examination of the gastro-intestional tract by aid of the barium meal at such hours as makes possible the study of the cecum and colon. Fluoroscopic examination is made at the sixth and seventh hours after the meal and as often thereafter as the specific circumstances of the case make necessary. X-ray films are made at the sixth, seventh, eighth and twenty-fifth hour periods following the administration of the meals, or at such other hours as are necessary to obtain the needed information. Rarely are examinations at later hours necessary.

PREPARATION OF PATIENTS

Patients are to have no laxative forty-eight hours prior to the examination. No breakfast is permitted the morning of the examination. Eating is resumed at the noon hour.

THE TEST MEALS

The primary test meal consists of

Barium sulphate	oz. IV
Cocoa	oz. I
Sugar	oz. I
Flour	oz. I

mixed and stirred well in sixteen oz. of sweet milk and given to the patient a three o'clock on the morning of the examination.

A secondary meal composed of a mixture of

Barium sulphate	oz. II
Buttermilk	oz. XVI

is given at the sixth hour examination (immediately after the sixth hour film in made) to make possible the gastric examination and an observation of the amount and location of the opaque substance at the twenty-fifth hour. (9 a. m. the following day.)

This time and manner of the meal administrations meet the requirements of the examination. The patients do not object. They make possible later examinations, during the working hours of the x-ray staff, of those patients in whom there is delayed filling of the cecum and colon.

X-RAY EXAMINATION

The first film is taken at the sixth hour (prior to the secondary meal administration.) This records the state of the stomach as regards a residue. The patient is then immediately fluoroscoped and given the secondary meal. The fluoroscopic observations of the stomach are made in the usual manner at this examination.

The opaque enema was used as a means of possible check upon cases presenting x-ray evidence of disease. In only one study, however, did the enema give more conclusive information than the meal. This case came to autopsy and our positive findings were verified.

The seventh hour after the primary meal a film is made and the patient fluoroscoped. At the eighth hour a film only is made unless special indications for fluoroscopy are present.

Fluoroscopy is done at the twenty-fifth hour after the secondary meal in order that structures may be identified and a film is made for record.

INTERPRETATION OF FLUOROSCOPIC EXAMINATION AND X-RAY FILMS

Notes supplemented by graphic drawings if necessary should be made at the time of the fluoroscopic examinations, noting:

1. Location of cecum.
2. Amount of filling in the colonic tract.
3. Motility of the cecum under palpation.
4. Areas of tenderness elicited by palpation.
5. Size and shape of cecum.
6. Condition of haustra, i.e., their regularity, whether deep or shallow, and the condition of filling.
7. Constancy of appearance at later examination.
8. Head of column.
9. Abnormalities of movement along the colonic tract.

The following should be noted (when the film is interpreted).

1. The size and shape of the cecum is described. Note: The normal cecum is the broadest part of the colon.
2. The amount of filling of the cecum as compared with the adjacent ascending colon is noted. Note: The irritable cecum may not contain as much opaque material, as the colon immediately distal to it.
3. The character and regularity of the haustra are investigated. Note: The normal cecum presents regular and fairly deep haustra. The irritable

cecum (also ascending colon) may be narrowed, have shallow haustra, missing haustra, constrictions or irregular indentations or may fail to retain barium in many quantity.

4. The retention of barium by the cecum is noted. Note: the normal cecum retains barium longer than any other portion of the intestinal tract. Any empty cecum at the twenty-fifth hour, with barium elsewhere in the colon is strongly suggestive of irritability of the cecum.
5. The retention of barium by the colon is noted. Note: the normal colon retains barium forty-eight hours or longer. An empty colon or a colon with little barium at the twenty-fifth hour is a positive indication of hypermotility.

BASIS OF X-RAY DIAGNOSIS OF CECAL AND COLONIC ULCERATION

The diagnosis of cecal and colonic ulceration is based upon evidence of **local irritability** and, when present, general colonic hypermotility.

The indications of local irritability are:

1. Spasm. Note: Since the cecum and ascending colon are more often the site of ulceration special reference is now had to these portions of the colon. In spasm of the cecum and ascending colon delayed filling of the cecum and a dilated terminal ileum are often observed.

2. Filling defects. Note: Filling defects are indicated by:

(a) A narrowed cecum or ascending colon. (b) Irregular, shallow or missing haustra. (c) A failure of the cecum or the ascending colon to retain barium with evidence of barium both cephalad and distal to these structures. (d) Failure of the cecum to retain a normal residue of barium in twenty-four hours.

Cecal spasm or other occlusions, partial or complete, are often clearly demonstrated by aid of the opaque enema and fluoroscopy. The progress of the head of the enema column should be carefully observed and all hesitancies in its progress noted. Normally there is a delay in passing the flexures but the progress of the enema material through the open colon should be consistent. Often structures under mild spasm will relax under the pressure of the enema and fill very well. It is, therefore, of great importance to observe the filling of the colon and cecum under the fluoroscopic screen since a well filled colon as shown by the film may give information which in truth is inaccurate.

Autopsy findings indicate that when spasm is demonstrated by aid of the opaque meal, and there is failure of demonstration of spasm by aid of the opaque enema, the meal findings should be accepted as most accurate. However, if spasm is demonstrated by aid of the opaque enema, and it is not so clearly shown by the meal, due consideration should be given the enema evidence and further study made. The value of this conclusion was demonstrated when one of the cases came to autopsy, in which the diagnosis (positive) was based upon the enema evidence rather than the meal. (Autopsy findings substantiated our diagnosis).

GENERAL COLONIC HYPERMOTILITY

General colonic hypermotility is indicated by failure of the colon to retain barium for a period within normal limits. The rate of movement, no doubt, is variable in different subjects. However, studies have indicated that at the twenty-fifth hour a large amount of the meal is normally present in the colon. If the colon is empty or retains only a small amount of the opaque substance hypermotolity is certainly demonstrated. (Correct standards for the estimation of normal and abnormal residue of opaque material at any stated period can only be obtained after many observations of colons devoid of movement abnormalities.)

Follows a statistical summary of the work upon which the above observations are based:

Three hundred patients were examined, thirty-five of whom had no clinical tuberculosis. Of the two hundred and sixty-five tuberculous examined, thirty-two were far advanced, with the pulmonary form and had class "A" symptoms. Of this number positive evidence of colonic ulceration was found in two—an incidence of 7.8 per cent. Hypermotility (colonic) was found in both. The enema substantiated the meal findings in both. Neither had symptoms referable to the gastro-intestinal tract. Gastric residue was present at the sixth hour after the meal ingestion in one. Both had pulmonary cavitation.

One hundred and fifty were far advanced and had class "B" symptoms. Of these thirty had positive evidence of chronic ulceration —an incidence of 20 per cent. Colonic hypermotility was present in twenty-two of these thirty cases, 73½ per cent. Sixteen of these positive cases also had positive enema evidence. Eight who had been positive with the meal examination were negative when examined by enema. Twenty had symptoms

referable to the gastro-intestinal tract and ten had none. None had gastric residue at the sixth hours. Twenty-five had pulmonary cavitation.

Twenty-six were far advanced and had class "C" symptoms. Of these twelve had positive evidence of colonic ulceration, an incidence of 45.8 per cent. Of the positive cases six had colonic hypermotility (50 per cent.) Eleven were examined by barium enema and all had positive evidence of ulceration. Ten had gastro-intestinal symptoms and two did not. Gastric residue was found after the sixth hour in two. Ten had pulmonary cavitation.

Fifty-seven classed moderately advanced and minimal cases were examined, many of whom were referred by the attending physician because of gastro-intestinal symptoms. It would appear, therefore, that the incidence of colonic ulceration, due to this partial selection of material, is somewhat higher than would be found in similar classes examined routinely.

Twenty-seven were classed moderately advanced with "A" symptoms. Three of these had evidence of colonic ulceration. All three had colonic hypermotility. Two were also positive by enema while one was not. Two had gastro-intestinal symptoms and one did not. None had gastric residue at the sixth hour. None had pulmonary cavity.

Twenty-three were classed moderately advanced with "B"symptoms. Four had evidence of colonic ulceration. Of the four positive cases three had colonic hypermotility. Three were also positive by enema while one was not. All four had symptoms referable to the gastro-intestinal tract. None had pulmonary cavity.

Twenty-three were classed moderately advanced with "B" symptoms. Four had evidence of colonic ulceration. Of the four positive cases three had colonic hypermotility. Three were also positive by enema while one was not. All four had symptoms referable to the gastro-intestinal tract. None had a gastric residue at the sixth hour. None had pulmonary cavity.

One was classed moderately advanced with "C" symptoms. This case had no evidence of colonic ulceration.

Five minimal "A" cases were examined and all were negative. One minimal "B" case was examined and found to have evidence of colonic ulceration. Colonic hypermotility was present. Gastro-intestinal symptoms were complained of. There was no gastric residue at the sixth hour. There was no pulmonary cavity.

Thirty-five had no clinical tuberculosis. None of these had evidence of colonic ulceration. Of the three hundred examined fifty-two had evidence of colonic ulceration, an incidence of 17.3 per cent. The incidence in the tuberculous examined (265) was 19.6 per cent. Thirty-seven (71 per cent) of the positive cases had colonic hypermotility. Three, or 1.2 per cent of the negative cases had colonic hypermotility. Thirty-five (67 per cent) of the fifty-two positive cases were also positive when examined by the barium enema. Ten of the cases positive by the barium meal findings were negative when examined by the barium enema. Thirty-seven of the positive cases had gastro-intestinal symptoms.

One hundred and forty-four of the negative cases also had symptoms referable to the gastro-intestinal tract.

Fifteen positive cases had no gastro-intestinal symptoms.

One hundred and four of the negative cases were also free of gastro-intestinal symptoms. Gastric residue at the sixth hour after the meal ingestion was found in three positive cases. Also in nineteen negative cases.

Pulmonary cavitation was present in thirty-seven of the positive cases (71 per cent.) One hundred and eight of the negative cases also had pulmonary cavitation.

It is of interest to note that a gastric residue at the sixth hour was found in a higher per cent of negative cases than of positive cases. This is contrary to the impression other observers have expressed. The failure of the barium enema to demonstrate colonic ulceration in many cases in which the barium meal had given positve evidence, will also be noted.

The increased incidence of positive findings amongst the more toxic groups is also shown. "A" cases 7.8 per cent, "B" cases 20 per cent, "C" cases 44.5 per cent.

The fact that 29 per cent of the positive cases did not have pulmonary cavitation should also be emphasized.

Excepting a few of the class moderately advanced, the foregoing material was non-selected and should represent an average study of a like number of similar patients in any tuberculosis group.

The chart below deals with symptoms incidence in the positive and negative studies respectively. Of the fifty-two positive cases symptoms were present in 71 per cent. Of the two hundred and forty-eight negative cases symptoms were present in 60 per cent.

	52 Positive cases	248 Negative cases
Anorexia	7.7	6.85
Nausea	7.7	10.
Gas Pains	59.6	28.6
Acid eructations	30.8	22.2
Flatulence	61.5	34.66
Undue nervousness	19.2	8.5
Unaccountable increase of constitutional symptoms	1.9	4.
Diarrhea	32.7	4.4
Constipation	11.5	29.8
Alternating diarrhea and constipation	13.5	1.2
Intestinal colic	26.9	9.7
Tenderness of abdomen	9.6	2.8
Sleeplessness	7.7	2.
Mental depression	5.8	2.
Emotional instability	15.4	4.4

An analysis of the above chart fails to indicate any clinical symptom or group of symptoms that points out conclusively the presence of intestinal ulceration.

The most common symptoms are those that result from the presence of intestinal gas. The continued presence of excessive intestinal flatulence in the tuberculous indicates the need of a study to determine the existence or non-existence of intestinal ulceration. Diarrhea, when present and continuous, is almost pathognomonic. (For purpose of this study diarrhea is defined as hypermotility, indicated by three or more bowel movements per day.) However, diarrhea will be found in only one-third of the patients having intestinal tuberculous ulcerations.

Physical signs are most often lacking. In this series abdominal tenderness was found in 9.6 per cent of the patients. As the disease progresses and approaches termination physical signs often are more frequently encountered. The abdominal muscles become spastic and very often there is a generalized abdominal tenderness.

The fact that as many as 29 per cent of positive cases in the present series were free of clinical or physical signs indicates the need of routine intestinal studies in the tuberculous.

TREATMENT

It is impossible to over emphasize the value of rest in the treatment of intestinal tuberculosis. It is this author's opinion that no form of treatment is known that will with consistency favorably influence this disease except where a regimen of rest is strictly observed. We have observed a patient who would not rest in bed except as fatigue made necessary, who had ten to twelve bowel movements daily. Following an episode of hemoptysis the patient remained in bed, was fed by a nurse and avoided all muscular activity. The bowel movements were reduced to two per day within a period of twelve days. The nearest approach to complete avoidance of muscular activity possible to institute in any active case of intestinal tuberculosis is the ideal regimen and should be continued until the signs of localized or general irritability of the colonic tract can no longer be demonstrated.

The favorable influence of general (rather than local) irradiations by the actinic rays produced by the mercury quartz vapor or carbon arc lamps are extremely gratifying. However, reliance upon this form of treatment without emphasis being placed upon the need of bed rest, is not justified. When the two are combined improvement may confidently be expected, except in the near terminal group. No attempt will be made to discuss in detail the technic of this form of treatment. The literature abounds with detailed instructions.

Abatement of symptoms and lessening of x-ray evidence of spasm and hypermotility may be expected in three to six weeks. The lessening of discomfort caused by excessive gas in the intestinal tract, which is often the only symptom present, is most often the first sign of improvement. The control of this particular symptom constitutes the greatest problem in relation to the comfort of patients.

It is often desirable to utilize ultra-violet therapy in the patient's home. Many patients find the cost of the mercury quartz vapor lamps prohibitive. In these instances the carbon arc lamp may be recommended, as the first cost is much less and treatment results compare favorably. The increased popularity of the carbon arc lamp in the last few years has been marked.

Natural heliotherapy, except in those instances where there is no pulmonary tuberculous disease, is emphatically contraindicated. Primary tuberculous infection of the intestinal tract is rarely seen, but when encountered natural heliotherapy may be considered. Use of the actinic ray should be continued for a number of months after all clinical and x-ray signs of the disease have disappeared.

The Alvarez diet which is cellulose free, easily digested, non-gas forming and of high caloric value, meets the requirements of those patients whose intestinal disease is marked by more than moderate x-ray signs of spasm and hypermotility, and having clinical manifestations, such as discomfort caused by excess gas formation, loose bowel movements, et cetera.

When clinical and x-ray signs are not so well marked a nearer approach to the usual

diet may be made, including or excluding foods with cellulose, fresh fruits, sugars and starches, as indicated.

When anorexia or poor appetite is a feature, pure olive oil may be given. It is well borne, is the easiest saponifiable of all oils, and has a high caloric value. A small amount of methyl salicylate may be added (1 c.c. to one pint of oil) to increase its palatibility. This author has prescribed alive oil both after irradiation with mercury quartz vapor lamps and without irradiation. Superiority of the irridiated product was not demonstrated.

Orange juice is usually well borne but may be alternated with tomato juice which is equally well borne and supplies qualities deficient in a strict Alvarez diet.

The nearest approach to a normal diet possible, always eliminating foods that are known to cause discomfort, is the diet of choice. Many patients resent a special diet and come to regard their food as a form of medicine and develop a psychological trend that interferes materially with appetite and digestion.

Sweet milk is often the cause of increased gas formation and resultant discomfort. Many of these patients can drink butter milk and milk in which the bacillus acidophilus has been cultured, without discomfort.

Calcium Chloride Therapy: Examination of healed tuberculous ulcers of the intestinal tract discloses that the healing process is quite different from that of tuberculous areas in the lung or glands, in that calcium deposition has no part in the healing of the intestinal ulcer. Calcium chloride administered intravenously seems to cause an amelioration of symptoms such as gas pains, intestinal colic, diarrhea, and often favorably influences the appetite. It should be remembered, however, that its value is found in its beneficent influence upon symptoms and not in its curative powers. Its greatest field of usefulness will, therefore, be found in the first few weeks of treatment, before rest and the actinic ray have themselves brought comfort to the patient. Calcium administration should rarely be indicated longer than three months. The dose is five cubic centimeters of the five per cent solution given intravenously bi-weekly. Extreme care should be taken to insure that none be deposited outside the vein because of its highly irritating effect upon tissues, which results in ulcer formation very difficult to heal.

Diarrhea that fails to subside after the above outlined treatment has been instituted or that must be checked before such treatment may become effective, is best controlled by some form of opium, preferably paregoric.

Often constipation is a prominent symptom. Laxatives should be consistently avoided because of their unfavorable influence upon the spastic and irritable areas. The use of lubricants with or without agar content is more satisfactory. Often the condition is most satisfactorily corrected by the use of olive oil or cotton seed oil (4 to 6 ounces) instilled into the rectum. Normal saline enemas may, at times, be indicated either as a method of clearing the colon or giving relief for excessive gas. In this instance, the addition of sodium bicarbonate is helpful.

The above outlined treatment will, in the majority of cases, bring about clinical and pathological improvement and sometimes cure. Almost all patients can be made comfortable. The hopeless terminal group with distressing intestinal symptoms should be given narcotics in such doses and with the frequency necessary for comfort.

Other special forms of treatment, as pneumoperitoneum or roentgen ray therapy, will rarely be needed.

Surgical interference is rarely indicated except in the hypertrophic form where occlusion of the gut lumen is threatened.

The fluid content should be carefully maintained by encouraging the patient to drink sufficient water. This is most important when the bowel movements are frequent and thin.

SUMMARY

1. Fluoroscopy for the purpose of establishing the identity of structures and authenticity of filling defects is essential.

2. Evidence obtained from the study of the twenty-fifth hour film is most important in the determination of the presence of local irritability and general colonic hypermotility.

3. X-ray evidence of local spasm in the proximal colon and generalized colonic hypermotility, when present, constitute the basis of the diagnosis of ulceration in the proximal colon.

4. Except in isolated instances a study by aid of the opaque meal will give more accurate information than that of the opaque enema.

5. Evidence obtained from a study of an opaque enema is valuable when evidence of spasm is shown. A lack of this evidence, however, does not exclude the presence of spasm.

6. A complete study of the colon must include that of the opaque enema because of

its substantiating value and the possibility of demonstration of spasm lacking in the meal result.

7. Any evidence to be of value must be demonstrable at different hours and definitely localized.

8. A definite demonstration of local spasm in the proximal colon without general colonic hypermotility is sufficient basis for positive diagnosis.

9. The incidence of intestinal tuberculosis in the far advanced class and in the toxic group of any class is such that an x-ray study of the intestinal tract is indicated.

10. The presence of symptoms not accounted for by pulmonary disease constitutes an indication for an intestinal x-ray examination of any tuberculous subject.

11. The presence of prominent intestinal symptoms are not a reliable basis for a diagnosis. In conjunction with x-ray evidence they have a certain value.

12. A positive diagnosis based upon x-ray evidence is not justified even in the absence of gastro-intestinal symptoms.

13. Best treatment results are obtained when physical rest is made the basis of the treatment plan.

14. A strict diet regime is not indicated except where the clinical and x-ray signs are rather marked.

(NOTE: The x-ray interpretative standards as applied to this series of studies were as similar to those of H. L. Sampson at Trudeau as frequent consultation and extended observation of his work could make possible. Appreciation of this help and courtesy is hereby gratefully acknowledged. It is also a pleasure to record the enthusiastic help of Dr. Harry B. Williams, Roentgenologist, at United States Veterans' Hospital, Sunmount, New York. All film interpretations and fluoroscopic observations were made in conjunction with him. He also participated in the many consultations with H. L. Sampson of Trudeau.

Appreciation is also expressed to Dr. Lawrason Brown whose criticisms and suggestions were solicited in connection with this study).

ATELECTASIS (MASSIVE COLLAPSE) IN PULMONARY TUBERCULOSIS

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(Read before the Fortieth Annual Meeting of the Arizona State Medical Association, held at Nogales, May 7-9, 1931).

The literature on atelectasis or massive collapse, occurring in pulmonary tuberculosis, is scanty indeed, even though this is a rather frequent complication during the course of the disease. The reason for this is probably that it is not generally recognized as such but is mistaken for thickened pleura, fibroid lung, tuberculous pneumonia, and at times pleural effusion. These named conditions however may be present at the same time and associated with atelectasis. Packard reported three cases occurring in tuberculous patients and states that it usually has a beneficial effect on the course of the disease. He also comments on the mildness of the symptoms and the permanency of this condition once established. Jacoboeus and Westermark, in their symposium on atelectasis, report four cases in connection with tuberculosis and show the value of artificial pneumothorax in treating these cases, as there is a tendency for uncollapsed cavities to enlarge. During the past two years at this institution we have seen a considerable number of these cases, and in nearly all of these have attempted some form of collapse therapy. In only a few was there a marked improvement in the patient's condition from the atelectasis itself. In only one was there a re-expansion of the collapsed or atelectatic lung.

PATHOLOGY

The cause of atelectasis is an obstruction or stenosis of a bronchus. When this occurs the air remaining in the lung cells, beyond the obstruction, is absorbed and, as a result, the lung tissue becomes collapsed, or atelectatic. Consequently, a marked negative pressure is produced, and, as nature abhors a vacuum, the heart, mediastinum, diaphragm, and often the opposite lung are displaced to overcome it. Where the collapse or atelectasis, remains permanent the lung becomes fibrotic in character.

A similar phenomenon occurs in artificial pneumothorax cases, where the compressed lung has become fibrotic and fails to re-expand when the pneumothorax is discontinued. Here the air in the pleural cavity is absorbed and a marked negative pressure produced, and consequently, as in the previous condition, the heart, mediastinum, opposite lung, and diaphragm are displaced to overcome this negative pressure. Fluid usually occurs in these cases, due to the decreased pressure.

What part a fibrosis of a lung in tuberculosis, with a contraction of the scar tissue, plays in producing displacement, might be a debatable question. It is possibly a factor in some of the cases where there is some aeration of the lung tissue present. However, it is more probable that most of the cases attributable to a fibrotic lung are due in reality to an atelectasis.

SYMPTOMS

We have found the symptoms produced by a massive collapse, as a rule, very mild and many times the collapse occurring without the knowledge of the patient. In the case in which the atelectasis has already been established some patients will remember a

slight hemorrhage following which they ran a mild temperature for a few days, or may state they had some pleurisy in the past. Other than this, it is hard to establish the time that the collapse occurred. In the cases that have occurred under our observation, the patients complain of some pain in the involved lung and some shortness of breath. At times the symptoms may be severe and mistaken for a pneumonia.

PHYSICAL AND ROENTGENOGRAPH FINDINGS

The physical and roentgenograph findings vary, depending on the amount of lung tissue involved and the pre-existing pathology present. The collapse, or atelectasis, may involve the entire lung, or it may be confined to one lobe or part of a lobe. Where there is considerable atelectasis, the physical findings are usually typical, namely, absence of expansion of the involved side, pulling over of the heart and mediastinum, dullness and absent breath sounds. Rales as a rule disappear, but they may become coarser and bubbling in character. At times, the breath sounds may be pneumonic in character, or amphoric if there is an underlying cavity. Cyanosis and an increase in pulse and temperature, are noted, but these usually disappear in a short time. Roentgenographically there is usually a marked opacity or consolidation, depending on the amount of lung tissue involved, with a narrowing of the intercostal spaces, drawing over of the heart, mediastinum and trachea towards the involved side, and an elevation of the diaphragm. Cavities which were present before may become obliterated or may be more distinct. Fluoroscopic examination reveals the same, but, in addition, the movement of the diaphragm is restricted.

TREATMENT

As the atelectasis tends to remain permanent, and aeration of the lung cannot be established by the usual means employed in postoperative cases, and as there is a tendency for cavities to enlarge, artificial pneumothorax seems to be the treatment of choice. In these cases the interpleural pressure is markedly reduced and the fluid is apt to be sucked over the top of the manometer if one is not careful. By instituting pneumothorax, this negative pressure is reduced, the heart and mediastinum returned to their normal position, the diaphragm depressed, and the lung still further compressed. In some of the cases where there was no free pleural space and the disease continued to progress, phrenic exeresis and thoracoplasty have been resorted to with most gratifying results. In one of our cases, a spontaneous pneumothorax occurred a short time before artificial pneumothorax was to be attempted.

CASE REPORTS

Case 1., A. O., married woman, aged 45, admitted Nov. 4, 1930. Family and past history negative. Following influenza in May, 1929, she did not regain her strength. She developed a slight cough and had intermittent pleurisy in the right chest. There was a loss of about 25 pounds in wieght. In July, 1930, she spat a mouthful of blood and later began running temperature. Sputum test positive

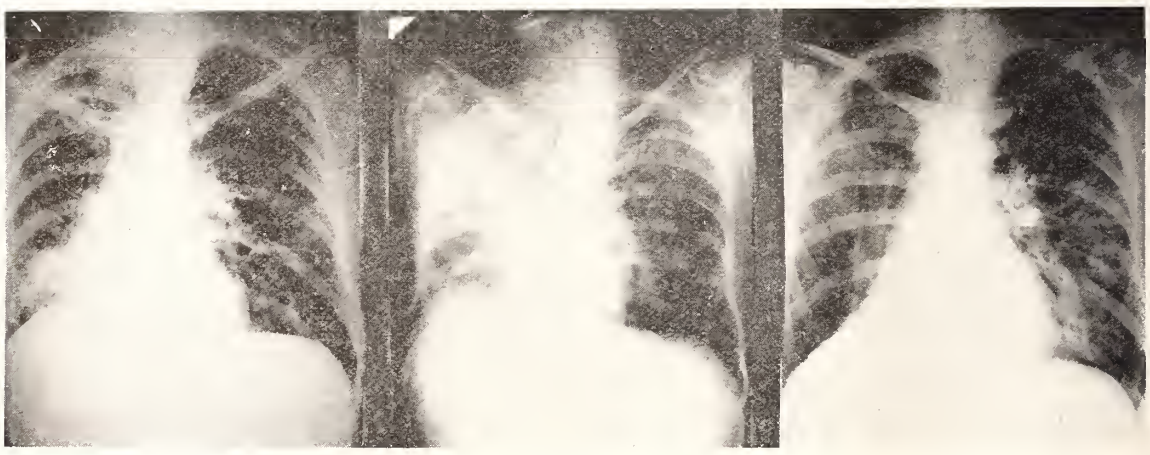

Fig. 1. Fig. 2. Fig. 3.

Fig. 1. Case I. Roentgenogram taken Jan. 12, 1931, showing slight cardiac displacement to the right, cavity in right upper lobe and opaque area in right base.

Fig. 2. Case I. Roentgenogram taken Feb. 20, 1931, two days after atelectasis developed. Shows displacement of heart and trachea, marked elevation of the diaphragm, and opacity in right chest. Cavity in upper lobe more distinct.

Fig. 3. Case I. Roentgenogram taken March 28, 1931, thirty-six days after partial pneumothorax was started. Heart, trachea and diaphragm are now in normal positions. Upper lobe held partially open by adhesions of pleura.

for tubercle bacilli. Under rest at home she did not improve.

On admission to St. Luke's Home her weight was 103. Normal weight, 145. Blood pressure: systolic, 140; diastolic, 90. Initial chest examination revealed diminished expansion of the right chest with medium rales base up. No cavity signs were made out and the percussion note was fairly resonant. Over the mid-portion of the left lung were a few scattered medium rales. An x-ray, taken Nov. 5, 1930, showed scattered infiltration, chiefly fibro-caseous, in the right upper with a suspicious, fairly large cavity. In the base and near the heart was an opaque area about 3 inches in width. The right diaphragm was slightly elevated. This opaque area was interpreted as a caseous pneumonia which might be due to a localized atelectasis. There was some fibro-caseous infiltration in the mid-portion of the left lung. Under the fluoroscope there was some restriction of the motion of the diaphragm. The Wassermann was negative and the sedimentation time was 25 minutes. Sputum positive for tubercle bacilli. Patient was placed on right postural rest. Her temperature averaged 99 to 99.4; pulse range, 90-100. X-ray taken Jan. 12, 1931 (Fig. 1), showed an increase in the pathology in the left side and the cavity was more pronounced in the right apex. The same opacity in the right base was noted as in the previous film. Physical examination did not reveal the cavity in the right apex, but there was an increase in the rales in the left lung. Patient's weight on Feb. 10, 1931, was 126, a gain of 20 pounds.

On Feb. 18, 1931, patient complained of some pain in the right lung and a slight increase in cough. The temperature was 101° and the pulse 115. There was no shortness of breath nor did she complain of palpitation. Physical examination now revealed dullness over the entire right lung except above the second rib and fourth dorsal spine. The breath sounds were now amphoric in character in the upper part of the upper lobe, below this the breath sounds and rales were absent. The left border of the heart was displaced toward the right. Patient was moderately cyanosed. X-ray taken Feb. 20, 1931 (Fig. 2), showed a massive collapse or atelectasis of the right lung confined to the lower part of the upper lobe, the entire middle and lower lobes. The heart, mediastinum, and trachea were markedly pulled over to the right, the left border of the heart being a little to the left of the spine. The right diaphragm showed considerable elevation, the dome lying in the fourth interspace. The cavity in the right apex was now exceedingly plain. The patient did not complain of much discomfort.

Artificial pneumothorax was instituted on Feb. 20, 1931. The initial manometer reading could not be obtained as the marked negative pressure drew the fluid over the top of the manometer. When 375 c.c. of air was introduced the resultant reading was minus 2 to minus 6. Under the fluoroscope, the heart and mediastinum were seen to have returned to their normal position and the diaphragm was depressed. The temperature dropped to 99° and the pulse to 80. Since then there have been a number of refills and the patient's general condition has improved somewhat. An x-ray taken March 28 1931 (Fig. 3), shows a partial pneumothorax, chiefly at the base, the upper part of the lung being held out by adhesions. The heart and diaphragm are now in their normal position. The cavity in the right upper is still present, but smaller and displaced inward. The indications now are for increasing the compression on the rgiht side.

Case II. A. B., spinster, aged 23, admitted Oct. 20, 1930. Family and past history of no importance.

Present illness began in April, 1927, with loss of weight, cough and streaked sputum. For two years she was under treatment in a sanitarium and rapidly improved. She was discharged without symptoms but still active. Since then she has not felt well and came to Phoenix in 1929. With rest she felt quite well. In May, 1930, she had a small hemorrhage. Since that time her cough has increased and she continued losing a little weight. During June, 1930, her temperature ranged from 100° to 102°.

On admission her weight was 102½ pounds. Temperature, 98°-99.2° and pulse 90-100. Chest exami-

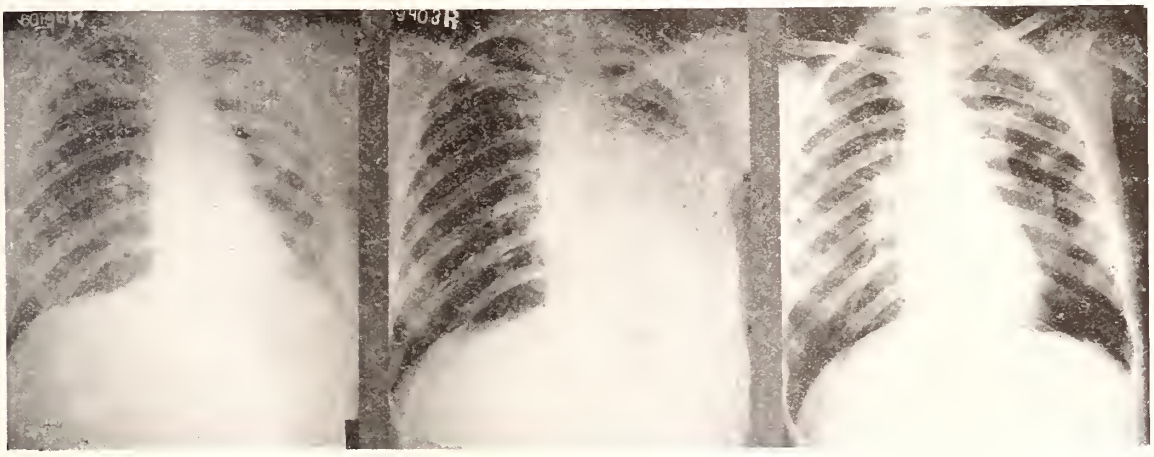

Fig. 4. Fig. 5. Fig. 6.

Fig. 4. Case II. Roentgenogram taken March 9, 1929, showing slight haziness over entire left lung, with cavity in left apex. Left diaphragm slightly elevated and heart displaced slightly to the left.

Fig. 5. Case II. Roentgenogram taken Oct. 19, 1930, showing massive atelectasis of the left lung, with open cavity in the apex. Heart displaced to the left diaphragm elevated.

Fig. 6. Case II. Roentgenogram taken Feb. 23, 1931, showing the effect of pneumothorax, with return of heart and diaphragm to their normal positions. Cavity at apex still open.

nation showed marked diminished expansion of the left chest, with dullness from the base to the second rib and fourth dorsal spine. The breath sounds were absent over the dull area but there were cavity signs in the apex. The heart was displaced to the left. Under the fluoroscope the left chest was opaque except in the apex, where there was a cavity. The left diaphragm was high and motion restricted. An x-ray taken Oct. 19, 1930, revealed the left lung opaque except for an apical cavity (Fig. 5). The heart and trachea were displaced to the left and the left diaphragm was high. A diagnosis of atelectasis of part of the upper lobe and the entire lower lobe was made. Sputum was positive for tubercle bacilli. Urine negative.

A previous x-ray, taken March 9, 1929 (Fig. 4), was obtained and this showed the heart slightly displaced to the left. The left diaphragm slightly elevated. The left lung was slightly hazy over its entirety. There was a fairly large cavity in the left apex with infiltration into the upper lobe, some being hidden by the haziness.

Pneumothorax was begun Oct. 20, 1930. The initial reading could not be obtained, due to the marked negative pressure drawing the fluid over the top of the manometer. When 300 c.c. of air was given the resultant reading was minus 3 to minus 5. Under the fluoroscope the heart and diaphragm returned to their normal position and the lung considerably compressed. Since then the patient has been taking pneumothorax regularly and has shown considerable improvement, even though the cavity in the left apex is still present. She was discharged Nov. 17, 1930, to her home. Her temperature was normal and pulse reduced. Her weight was 109.

X-ray taken Feb. 23, 1931 (Fig. 6) shows heart and trachea and diaphragm in normal position. The left lung is about collapsed but the cavity in the apex is still held open by adhesions. Thoracoplasty will probably be necessary for a closure of the cavity.

This case is interesting in that no definite history could be obtained as to the time of the massive collapse. It probably occurred at the time she had her hemorrhage. Also because the x-ray taken in March, 1929, shows a partial atelectasis in that the heart was slightly displaced to the left and the diaphragm slightly elevated; also, the left lung was hazy.

Case III. C. S., minister, aged 72, admitted Nov. 6, 1930. Family history negative. At 30 years of age he had a "breakdown." Rested for a while and later took up engineering work, which he continued for 15 years. Felt fairly well most of the time. In 1912, after he had returned to the ministry, began losing weight and coughing. No tuberculosis found at this time and the patient rested at home. His general condition was fair but he would have intermittent hemorrhage.

On admission patient was fairly well nourished, weight was 150. Temperature range, 99°-100°; pulse, 95-110. Blood pressure: systolic, 145; diastolic, 95. Chest examination showed cavity signs in the right apex and scattered medium rales over the right upper chest. There were a few scattered rales in the left apex. Patient was instructed to take right postural rest. X-ray taken Nov. 8, 1930 (Fig. 7), showed marked fibrosis in the right apex with a cavity. There was some scattered infiltration in the rest of the right lung. Left lung showed some fibrosis. The heart was slightly displaced to the right. Sputum positive for tubercle bacilli.

On Nov. 23, 1930, patient began hemorrhaging. Usual methods did not control it. Pneumothorax was attempted but there was no free pleural space. On Nov. 25, 1930, a blood transfusion was done and a phrenic exeresis, but small hemorrhages continued. Dec. 3, 1930, patient developed pain in the right chest, dyspnea and some cyanosis. Chest examination showed absent expansion on the right side, with dullness. The breath sounds were absent, and the heart displaced to the right. X-ray taken Dec. 4, 1930 (Fig. 8) showed a massive collapse of the right lung with marked cardiac displacement. The diaphragm was high, probably due to both the phrenicetomy and the atelectasis. Patient was quite ill and at times delirious. Had considerable mediastinal pain. On Dec. 18, 1930, the breath sounds were coming through on the right side but the heart was still displaced. Dullness was still present. Daily examination showed the

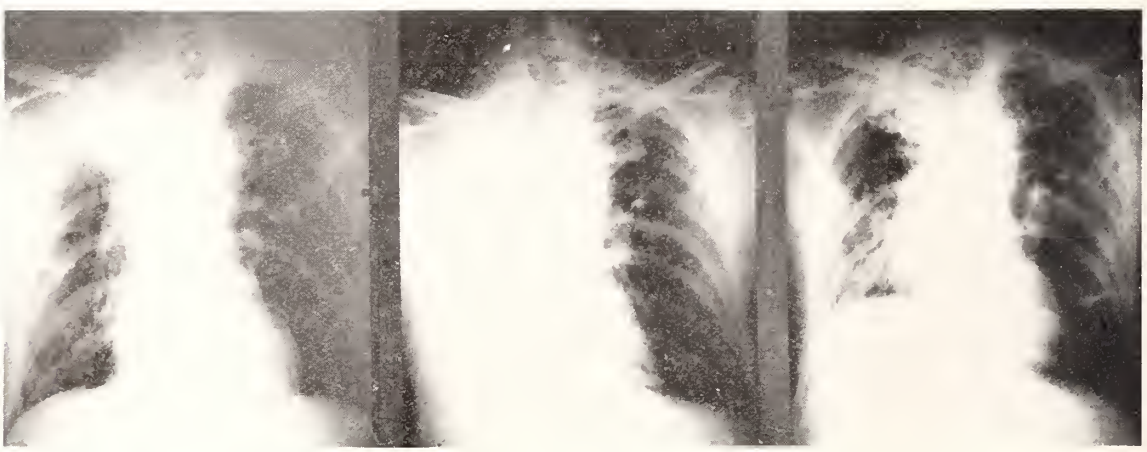

Fig. 7. Fig. 8. Fig. 9.

Fig. 7. Case III. Roentgenogram taken Nov. 8, 1930, showing marked fibrosis with cavity at right apex.

Fig. 8. Case III. Roentgenogram taken Dec. 4, 1930, showing massive atelectasis of the right lung, with marked displacement of the heart.

Fig. 9. Case III. Roentgenogram taken Dec. 26, 1930, showing re-expansion of the right lung and heart returned nearly to its normal position. There are areas of caseous bronchopneumonia in the right base. High diaphragm is due to phrenic exeresis on the right.

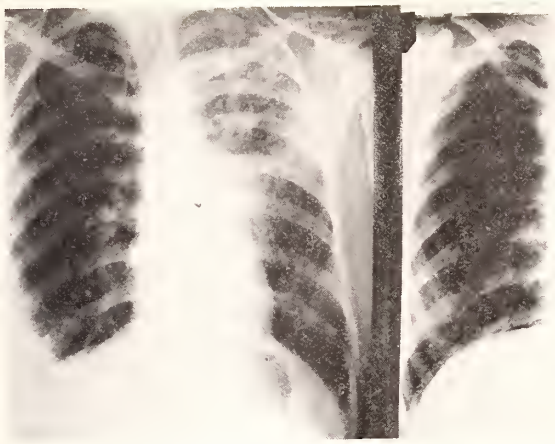

Fig. 10.

Fig. 11.

Fig. 12.

Fig. 10. Case IV. Roentgenogram taken July 5, 1929, showing infiltration in the left upper with cavity.

Fig. 11. Case IV. Roentgenogram taken Aug. 26, 1929, showing massive atelectasis of the left lung. Large cavity in apex. Heart displaced to the left. Diaphragm high, as seen under fluoroscope.

Fig. 12. Case IV. Roentgenogram taken Feb. 5, 1931, showing conditions after a posterior extrapleural thoracoplasty.

right lung clearing and an x-ray taken Dec. 28, 1930 (Fig. 9) showed the atelectasis cleared and the heart returned to its normal position. The right diaphragm was high, due to the phrenic intervention. There was some caseous broncho-pneumonia remaining in the lower right.

At the time of the atelectasis the temperature rose to 102.5° and continued for about four days, when it fell to about 99°, where it remained. The pulse rose to 120 and gradually returned to 90-100. Later the pulse ranged between 110 and 120. The patient's condition steadily grew worse in spite of the clearing of the collapse. He had considerable cardiac pain. The right lung did not show any further change by physical examination. Patient died Jan. 3, 1931. Autopsy was not obtained.

Case IV. D. B., housewife, aged 27, admitted Aug. 15, 1929. Grandmother died of tuberculosis. Past history. She had the usual childhood diseases. Always well and strong. Appendectomy, 1924. Ether anesthesis. Complete recovery. She has one child, age 6, living and well.

In February 1929, following the influenza, she did not regain her strength. Coughed considerably. In June she began having night sweats and cough increased. Consulted a physician in July, 1929, and was told that she had tuberculosis. An x-ray taken July 5, 1929 (Fig. 10), showed considerable scattered caseation above the fourth rib, with a cavity in the apex. There was no history of pain, any marked rise in temperature, not shortness of breath.

On admission, chest examination revealed dullness, base up on the left with diminished or absent breath sounds. There were cavity signs present in the left apex, with a few large rales in the upper chest. Fluoroscopic examination showed a marked opacity over the left lung with the exception of the apex, where there was a large cavity. The heart was pulled to the left and the diaphragm was high and fixed. A diagnosis of atelectasis was made. X-ray taken Aug. 26, 1929 (Fig. 11), revealed the same as the fluoroscope, only that the diaphragm was not well made out. Sputum examination was positive for tubercle bacilli. The temperature range was 99°-101° and the pulse 80-100. She was placed on left postural rest, and later pneumothorax was attempted but there was no free pleural space nor was any fluid obtained at the time. Under rest her temperature and pulse subsided somewhat and she gained weight. A phrenic exeresis was done on the left side Jan. 14, 1930, and an x-ray in March of the same year showed the cavity in the left apex greatly enlarging, the lung still remaining collapsed. In May, 1930, a left-sided thoracoplasty was done and since that time, the patient has made remarkable improvement. At present she is free from cough and temperature and her weight is 130. Sputum still positive. X-ray taken Feb. 5, 1931, (Fig. 12) shows a complete thoracoplasty on the left side. The right lung remaining clear.

The atelectasis in this case occurred between July 5, 1929, and her admission on August 26, 1929. Further questioning of patient did not reveal exact time of the atelectasis.

Case V., E. N., housewife, aged 32, admitted Oct. 14, 1930. Family and past history negative.

In 1928 she began coughing and running temperature. She also had some pain in both chests. In December, 1929, a positive sputum was found and she was told that she had tuberculosis. Since that time she has been under treatment in a number of sanitariums and has improved somewhat. For the past few months she has had periodic upsets with high temperature which lasts for a few days. Sputum decreased at these times.

On admission was normal except for an occasional rise. The pulse range was 80-90. Sputum positive for tubercle bacilli. Blood Wassermann negative and the sedimentation time 3 hours. Her weight was 128. Normal weight, 130. Chest examination revealed dullness, base up on the left side, with diminished breath sounds. There were crackles over the left chest. There were a few scattered rales over the right upper. Fluoroscopic examination showed the heart displaced to the left, the left diaphragm high and motion restricted. The left chest was more or less opaque, with areas of lesser density. Roentgenogram dated Oct. 16, 1930, showed a marked density throughout the left lung, in which could be seen a fairly large cavity. The heart was displaced to the left and the diaphragm was high. Findings typical of atelectasis.

Artificial pneumothorax was attempted a number of times in this case but was not successful. Fluid or pus was also looked for at these times. Patient continued having periodical upsets with high temperature, 102°-104°, at intervals and thoracoplasty was recommended but refused. A phrenic exeresis was done Nov. 12, 1930, on the left side. There was no material rise in the diaphragm. Since that time her condition has remained about the same except for these periodical upsets which are probably a question of drainage of a cavity. Thoracoplasty seems to be the treatment of choice in this case.

No history was obtainable in this case as to the time that the atelectasis occurred and previous x-rays were not obtainable.

Case VI. E. K., auto-mechanic, aged 42. Family history: Three brothers died of pulmonary tuberculosis. Past history: Herniotomy, bilateral, 1914, ether anesthesia. States that he has been coughing for 20 years. Present illness began in 1926 with cough, temperature and loss of weight. A positive sputum was found at this time and since then he has been resting and feeling better. For the past year he has had gastric upsets with vomiting after eating. His cough has been moderately severe and he expectorates about 2 ounces a day. For the past few months his stomach has given him considerable trouble and he came for relief of this.

Physical examination, March 27th, 1931, showed diminished expansion over the left chest. In the base of the left lung there was dullness. The breath sounds were tubular in character over the entire left chest. Whispered pectoriloquy was present over the left lung. There were scattered medium coarse rales over the base. In the right apex were a few medium rales. Fluoroscopic examination showed the heart displaced to the left, the diaphragm high and restricted in motion. In the base of the left lung was a marked opacity, above this there was a large cavity or multiple cavities. Abdominal examination did not reveal any pain or tumor masses. An x-ray (Fig. 13) taken the same day revealed the same as the fluoroscope. A diagnosis of atelectasis in the left base with a large cavity in the upper part of the left lung, was made. Thoracoplasty was advised in this case providing a gastro-intestinal examination was negative. Patient wished to try pneumothorax first. He was to enter the hospital on April 14, 1930, for an attempt at artificial pneumothorax but the night before he developed a sudden pain over the left chest with shortness of breath. A diagnosis of spontaneous pneumothorax was made. An x-ray taken the following day, April 5, 1930 (Fig. 14) showed the heart displaced slightly to the right and an area of pneumothorax in the left lower. Aspiration had to be done later because of the fluid and dyspnea and this showed a beginning empyema. Later a rib resection was resorted to and this was later followed by a phrenic exeresis and a thoracoplasty. Patient died later from shock of an anterior rib resection.

Fig. 13.

Fig 13. Case VI. Roentgenogram taken March 27, 1930, showing atelectasis in the left base, with large cavities in the left upper. Under fluoroscope diaphragm seen to be very high.

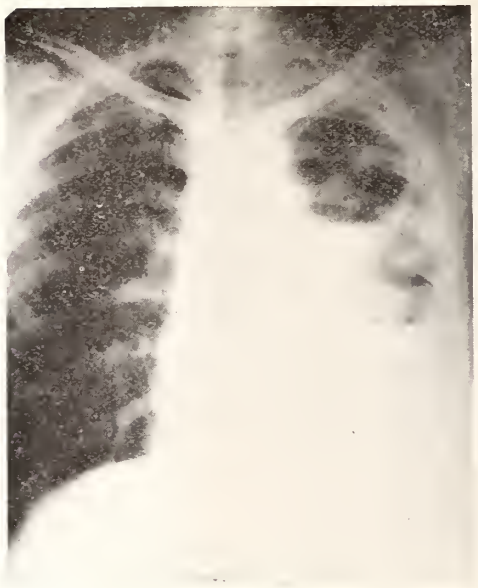

Fig. 14.

Fig. 14. Case VI. Roentgenogram taken April 5, 1930, showing spontaneous pneumothorax which had developed. The heart has returned to its normal position.

Case VII. H. E., housewife, aged 32. Mother and two brothers died of tuberculosis. Past illness of no importance.

In 1918 patient had influenza. Following this she continued coughing and had a slight hemorrhage. For a time took the rest cure and improved. Did her own housework until 1928, when she began running temperature, coughing and losing weight. Since that time she has been confined to bed but has not noticed any improvement in her condition. She has had pains in the left chest. Chest examination made on July 3, 1929, showed a few medium rales in the right upper chest. In the left base there was considerable impairment in the resonance and diminished breath sounds. In the left apex there was increased whispered voice. Coarse rales were present over the entire lung field. The heart was displaced to the left. Her temperature ranged from 89° to 100° and she expectorated about 4 ounces daily.

She had previously had an x-ray made, Feb. 6, 1928, which showed some scattered infiltration in the right upper lung. The heart and trachea were slightly displaced to the left, and the left diaphragm

possibly showed a slight elevation. The left lung was slightly hazy throughout and showed scattered infiltration and a large cavity in the mid-portion. X-ray taken July 1, 1929, showed an atelectasis in the left base with heart displaced to the left and the diaphragm high. There were large cavities present in the left upper and a small cavity in the mid-portion of the right lung.

Artificial pneumothorax was started on the left side on July 20, 1929. The initial reading was minus 9 minus 4. Two hundred cubic centimeters of air was given and the resultant readings were minus 5 minus 3. After a number of refills, fluoroscopic examination showed a partial collapse of the left lung, the heart and diaphragm in their normal position. An x-ray taken Jan. 2, 1930, showed a partial compression of the left lung with two open cavities; heart and diaphragm in normal position. The right lung showed the cavity in the mid-portion greatly increased in size. Pneumothorax was continued, however, as the patient was more comfortable and as re-expansion of the left lung would not take place.

Case VIII. H. M., bachelor, aged 35, admitted Dec. 8, 1929. Family history negative.

Appendectomy, April 1923, and never felt well afterwards. Ether anesthesia. In February, 1926, began losing weight and having night sweats. Sputum examination at this time was positive and he was placed on bed rest. Has been under treatment continually and never placed on exercise. His weight continued to fall off and he continued running temperature.

Physical examination, Dec. 8, 1929, showed him to be markedly undernourished. Weight was 121; normal weight, 180. His temperature range, 98°-99.6°. Pulse 84 to 90. He was raising 4 ounces of sputum a day, which was positive for tubercle bacilli. Chest examination showed medium rales above the fourth rib and fourth dorsal spine on the right. On the left there were medium coarse rales, base up, and increased whispered voice in the apex.

Roentgenograph taken Dec. 11, 1929 (Fig. 15) showed fibro-caseous infiltration in the right upper above the second rib, with a questionable cavity. The left showed multiple cavities over the entire lung.

Under rest there was slight improvement, so a phrenic exeresis was done April 24, 1920. There was a good rise in the diaphragm. In June, 1930, patient went to Los Angeles, where he continued under treatment. X-ray, July 18, 1930, (Fig. 16) showed cavities still open on the left and the left diaphragm high. There was a slow gain in weight, In October 1930, his weight was 140. On Oct. 15, 1930, patient had a moderated hemorrhage. Following this, temperature was elevated and he had some soreness in the left chest. He soon began to feel better and gained weight rapidly. In January 1931, patient returned to Phoenix. Weight at that time was 155. Chest examination at that time showed dullness over entire left chest with markedly increased whispered voice and bronchial type of breathing. There were a few scattered rales over the left chest and in the right apex. An x-ray taken Jan. 20, 1931 (Fig. 17) showed the pathology in the right apex decreased considerably. On the left there was a total opacity with an extremely elevated diaphragm. The heart was displaced to the left. This opacity over the left was undoubtedly an atelectasis which occurred at the time of his hemorrhage in October 1930. Since that time he has shown a very marked improvement, with normal temperature and pulse, and his present weight is 178, a gain of 38 pounds following the collapse. Intervention was not deemed necessary in this case thus far.

SUMMARY

Atelectasis is more common in pulmonary tuberculosis than is generally recognized and, once established, it is usually permanent. The symptoms may be mild and often overlooked by the patient. In some cases the tuberculosis shows a marked improvement from the atelectasis, but it is probably more apt to be detrimental, because of the cardiac displacement and the tendency for cavities to enlarge. The treatment of choice is artificial pneumothorax. Atelectasis should be considered in all cases where the roentgenogram shows a narrowing of

Fig. 15. Fig. 16. Fig. 17.

Fig. 15. Case VIII. Roentgenogram taken Dec. 11, 1929, showing infiltration through right upper and large cavities throughout left lung field.

Fig. 16. Case VIII. Roentgenogram taken July 18, 1930, showing effect of phrenic exeresis on the left side.

Fig. 17. Case VIII. Roentgenogram taken Jan. 20, 1931, showing atelectasis of the entire left lung.

one side with cardiac displacement and an elevation of the diaphragm, regardless of the amount of opacity or density in the affected side.

REFERENCES

Packard, E. N.: Am. Rev. Tub. 18, 7, 1928.
Jacoboeus, H. C.; and Westermark, N.: Acta Radiologica, Dec. 31, 1930.

DISCUSSION

DR. HOWELL RANDOLPH, (Phoenix): The surgical literature of the past five years has been filled with articles calling attention to massive atelectasis. Among postoperative complications it has come to outrank pneumonia in the minds of many. Coryllos goes so far as to state that between 50 and 75 per cent of so-called postoperative pneumonias are at some stage purely cases of atelectasis. This paper is one of the few calling attention to the occurrence of the condition in exudative or suppurative pulmonary disease, diseases in which the conditions now thought responsible for the production of atelectasis are so often present, namely, bronchial obstruction by infectious material, together with coughing and difficult breathing, at times the bronchial plug acting as a valve. When considering this mechanism of production it seems most strange that more typical cases of massive collapse are not seen in pulmonary tuberculosis. I am highly indebted to Dr. Gatterdam for directing our attention to this subject. There is no doubt in my mind that we will see more cases if we look for them.

DR. E. A. GATTERDAM, (closing):-

In regard to the bronchoscope for relief of an atelectatsis: I have had no experience. Most of the cases seen in tuberculosis are usually of long standing so that fibrosis of the lung has occurred. Atelectasis is probably one of nature's defenses to aid the healing of a tuberculous lesion. I believe the safest and best method is to further compress the lung with pneumothorax, when possible.

The term "thickened pleura" in an x-ray reading should be used much less frequently. Roentgenologically, thickened pleura is, as a rule, hard to demrisies, such as adhesions to the diaphragm and obliteration of the costophrenic angles. It takes an extremely thickened pleura to cause a marked opacity, and many of these are due to an encysted empyema or a caseous pleurisy. Fluid is easily ruled out in these cases, as with fluid there is apt to be displacement of the heart and mediastinum to the opposite side and the diaphragm is depressed. Aspiration should be done if there is doubt.

A CRITICISM UPON THE CURRENT CONCEPTION OF ARREST IN PULMONARY TUBERCULOSIS

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A questionnaire sent to an average group of phthisiologists of the United States shows that there is a great difference of opinion as to what constitutes an arrest in pulmonary tuberculosis. Of those who replied, 40 per cent stated that they unqualifiedly followed the classification of the American Sanatorium Association, 44 per cent followed it with exceptions and reservations, while 16 per cent based their determination of arrest on other criteria.

The American Sanatorium Association first adopted a classification in 1909. Modifications have been made several times, the last being in 1922, when the roentgen ray was admitted into the classification. Since 1922, there have been many advances in our knowledge of pulmonary tuberculosis. We have, therefore, been trying to use a classification several years behind the times—a classification which does not at all coincide with the more recent developments.

The advancement of our knowledge of pulmonary tuberculosis, which must be taken into consideration in a future scheme of classification, will be briefly stated as follows:

1. Our changed viewpoint in regard to rales:

Bruns,[1] after several years of research, has come to the conclusion that the most unusual type of rales heard in pulmonary tuberculosis—those heard on inspiration, occurring in showers following an expiratory cough—are not due to moisture in the terminal bronchioles, as usually supposed. After careful experimentation on the cadaver, Bruns believes that the rales in question are due to partially collapsed alveoli or lobules, the collapse being caused by infiltrating tubercles in a neighboring lobule, by contraction of fibrous bands, by pleural adhesions, and so forth. He further found the same type of rales present in all the different anatomical-pathological types of tuberculosis; also, in cases with fever or without fever, with expectoration or without expectoration, and in arrested cases, as well as active cases. Bruns concludes, therefore, that these rales, which he calls parenchymal rales, do not necessarily mean active tuberculosis or even tuberculosis at all, are not due to moisture, and are more of the nature of atelectatic rales.

Heise[2], of Saranac, has recently published some very timely articles on rales. In one of these articles, it was his object to show that the increase or diminution of rales in pulmonary tuberculosis was of no value in determining the patient's progress. His conclusions were drawn from the study of 412 records over a six months' period. He divided his cases into four classes:

Class A: When rales over a period of six months remained the same as to area and character—111 cases
103, or 93 per cent, showed x-ray improvement;
2, or 2 per cent, showed x-ray increase;
6, or 5 per cent, showed no change.

Class B: When rales were found over a greater area—92 cases
65, or 71 per cent, showed x-ray improvement;
5, or 6 per cent, showed no change;
22, or 23 per cent, showed x-ray increase.

In Class B, if the clinician had come to the conclusion that the patients were worse be-

cause they had an increase in rales, he would have been 23 per cent right and 77 per cent wrong.

Class C: When rales showed a diminution of area—83 cases

73, or 88 per cent, showed x-ray improvement;
5, or 6 per cent, showed x-ray increase;
5, or 6 per cent, showed no change.

Class D: When rales appeared after treatment and not before—51 cases

40, or 78 per cent, showed x-ray improvement;
3, or 6 per cent, showed x-ray increase;
8, or 16 per cent, showed no change.

In Class D, a clinician going on the theory that the appearance of rales means progression of disease would have been 94 per cent wrong and 6 per cent right.

Our conclusion must, therefore, be that the increase or diminution in rales in pulmonary tuberculosis is of very limited value in depicting the anatomical changes which take p'ace in the pulmonary lesions.

2. Our changed viewpoint in regard to the value of constitutional symptoms in determining activity of pulmonary tuberculosis:

Much has been written during the last few years in regard to latent pulmonary tuberculosis in children. Such children look well, feel well, have not lost weight, have no elevation of temperature, have no physical signs of disease, but roentgenograms show marked pulmonary infiltration. McPhedran[6] remarks that, although the lesions are latent, they are usually active and often rapidly progressive—elevation of temperature, malaise, and so forth being manifestations of the disease.

What is true of children as to latency is also true of beginning tuberculosis in adults, although to a somewhat less degree. Both the acinous nodose and broncho-pneumonic types of the disease often develop very slowly. No constitutional symptoms are present or they are so slight as to escape notice, a parenchymal infiltration seen by the roentgen ray being the only evidence that the individual is ill. Here also, as in children, if proper treatment is not instituted, the lesion usually progresses and late manifestations develop.

Again, when an active case of pulmonary tuberculosis, with loss of weight, elevation of temperature, rapid pulse, and so forth, is placed on continuous rest in bed, usually in a few months a great change occurs. There is gain in weight, the temperature and pulse become normal, and practically all symptoms disappear. This startling change has been our pitfall in the past. We formerly believed, and the idea still persists in some quarters, that pulmonary tuberculosis may be arrested in a few months. The roentgen ray has demonstrated that, 'although clinical symptoms may disappear in a few months, the tuberculous lung pathology clears and fibroses very slowly and heals only after years of prolonged and continuous rest. It is, therefore, not only recognized that a lesion which is progressive must be considered active but also that a lesion which is retrogressing must be considered active, whether there are constitutional symptoms or not.

3. Our present ideas as to the value of the roentgen ray in diagnosis and in determining progress:

During the early part of the present decade, the roentgen ray had not even been admitted into the schema of classification of the American Sanatorium Association. Physical findings, especially rales, were considered of prime importance. Amberson's[4] articles published in 1921 and 1922 were most timely. He stressed the importance of the roentgen ray not only in diagnosis but advocated the use of stereo-roentgenograms taken serially at two to four months' interva's in order to determine the progression or retrogression of the lesions in the lungs. He made plain the point that activity could be demonstrated, not by viewing one x-ray plate alone, but by determining if changes in the lesion were taking place by the comparison of a series of roentgenograms. The medical profession has been somewhat slow in accepting Amberson's views, but at present the leading clinicians and phthisiologists place their main reliance on the roentgen ray, not only in diagnosis but also in determining the exact changes occurring in the lungs during treatment.

Gerald B. Webb[5] states that the development of the x-ray in diagnosis and its use for the exact following of changes during treatment in tuberculosis is one of the most important developments of knowledge during the last quarter of a century.

McPhedran[3] states that there is no method that records the tuberculous invasion of the lungs and the progress or retrogression with accuracy approaching that of the x-ray. He states further: "The x-ray is the method of precision for detecting the presence and evaluating the exact severity and direction of changes of a lesion. The roentgenogram is the pivotal point of early diagnosis and the guide and index of effective treatment."

4. Our increased appreciation of the value of rest in pulmonary tuberculosis:

Of all the alleged specifics and forms of treatment that have been advocated, rest alone has endured. At the beginning of the decade, patients were required to rest only when they had an elevation of temperature. After their temperature had reached normal limits for a few weeks, toxemia had disappeared, and they had begun to gain weight, they were placed on graduated exercise. As stated above, clinicians, after adopting the study of serial roentgenograms, found how slow the clearing up of lung pathology was in comparison with the improvement of the general condition of the patient. It seemed, therefore, only logical to continue rest until an anatomical arrest had been attained, not merely a symptomatic arrest.

Still further study of roentgenograms has shown what wonderful results can be obtained by continuance of prolonged rest without interruption, especially when cavitation exists.

Thus, rest at the present time is considered more than ever a specific for the cure of pulmonary tuberculosis.

Graduated exercise, on the other hand, has come into disrepute except when the pulmonary lesion has healed; only then should a patient be prescribed exercise.

5. Certain laboratory procedures developed in the last few years are considered by many a distinct advance in determining the physical condition of the tuberculous patient:

Among the most important of these are the blood sedimentation test as developed by Fahraeus[5], Greisheimer[7], and Cutler[3], and the new significance placed on the leucocyte count in pulmonary tuberculosis, as described by Medlar[8], Flinn[10], and others.

With the above advances in our knowledge in mind, what are the criteria for a working classification in those essentials which will not only help clinicians in determining an arrest but will be a standard for all to follow?

Such criteria must be easily understood. The wording must not be ambiguous and contradictory, as found in our present classification, but should be concise and to the point.

The following suggestions are based on the present developments of our knowledge of tuberculosis, aided by answers to a questionnaire which was sent to many of the foremost phthisiologists of the country.

In this discussion, an arrested case and a healed lesion are considered synonymous. In the past, there has been too much guess work as to what constitutes an arrested case. Some clinicians, as noted in our questionnaire, consider a tuberculous patient arrested when he seems clinically well and has no bacilli in his sputum, whether this condition has lasted for a month or a year. Others would consider a case arrested only when a well-fibrosed stationary lesion, as seen by serial roentgenograms, has existed for two years. The first group is evidently confusing arrest with latency. A latent case, as stated above, may be active.

Our endeavor in the treatment of pulmonary tuberculosis is to cure our patients, not merely to alleviate symptoms and send them back to work only to have them return in worse condition than before. Sanatoriums which send out patients with a symptomatic arrest only, report that from 25 per cent to 50 per cent of such patients are dead within five years. We must, therefore, have in mind an anatomical arrest, not a symptomatic arrest. This view should be the basis of a classification.

1. Constitutional Symptoms:

In the past, constitutional symptoms have been considered very important in determining activity. This is a very crude method, and it is equally crude to state that the absence of constitutional symptoms indicates quiescence or the absence of activity. Elevation of temperature, rapid pulse, and so forth, may be due to other causes and the active case under treatment may have a normal pulse and temperature. The schema of classification of the American Sanitorium Association states as follows: "Arrested — All constitutional symptoms and expectoration with bacilli absent for a period of six months." The author of the above statement must have had in mind a symptomatic arrest, as it would be quite unusual to have an anatomical arrest within six months after all constitutional symptoms had disappeared. Also, if the criteria for arrest, as determined by the roentgen ray as suggested in the next few pages, are followed, it would be quite unusual to have constitutional symptoms enter the picture, as they are usually absent for years before an arrest is reached.

We would suggest the following as to constitutional symptoms: All constitutional symptoms that are reasonably certain to be due to tuberculosis and bacilli in sputum to be absent for at least one year. That constitutional symptoms are absent does not necessarily mean quiescence or inactivity. Such cases must be checked up by serial roentgenograms, which should be the deciding factor.

In the present scheme of classification, a

quiescent case is described as follows: "Absence of all constitutional symptoms, expectoration and bacilli may or may not be absent; physical signs and roentgen findings to be those of a stationary or retrogressive lesion, the foregoing to have existed for at least two months." Under the above definition, it is entirely possible and probable for a quiescent case, as above described, to have extensive parenchymal infiltration with cavitation. The term quiescent, therefore, as described by the present classification, only means there are no constitutional symptoms. Such cases are usually anatomically active and require years of treatment. It is illogical to set a time limit and expect an arrest in six months. Why, therefore, call them quiescent? We doubt if this term should be used in a future classification.

2. Physical Findings:

If we are to accept the newer teachings of Bruns and Heise as to physcial findings, and especially as to rales, we can come to but one conclusion. Physical findings have no place in a schema of classification as a criterion for the determination of an arrest in pulmonary tuberculosis.

3. The Roentgen Ray:

The present schema of classification gives the following x-ray definition of a healed lesion: "Roentgenograms to show clearing, fibrosis, calcification, or a stationary condition."

This statement is very ambiguous and has caused much controversy and misunderstanding, as is very evident from the answers to the questionnaire. Does it mean that clearing is still going on or is it completed? It is well to note the "or." Does it mean that we have two alternatives on which we may determine an arrest—clearing fibrosis and calcification on one hand; a stationary condition on the other? These are very vital points, and are not made clear and it is impossible to guess the intention of the authors.

*While clearing of the tuberculous lesion continues, as seen by comparison of roentgenograms, we must assume that the lesion is still unstable and activity exists. The majority of the clinicians who answered the questionnaire are of that opinion.

McPhedran[11] expresses this idea as follows: "A patient in whom pulmonary infiltration appears as soft ill-delimited spots, especially if these tend to confluence, should be treated by rest in bed until the futility of such care is proved by adequate observation. So long as such a lesion, roentgenographically recorded at three months' intervals, continues to show a material retrogression from one quarterly record to the next, the patient must be regarded as one who is still in need of the benefits of rest in bed. Such a lesion is clearly very unstable."

On the other hand, can we assume when retrogression has come to an apparent standstill, as seen by comparison of the roentgenograms, that healing has taken place? Other factors must enter the picture. The lesion must not only have become stable but it must appear hard, in other words, fibrosed.

Another factor is time. We are not justified in saying that a lesion, even if hard, is healed the first time a quarterly interval comparison of roentgenograms shows a stationary condition. The stable condition should continue for some months. McPhedran[8] supports this view. He states: "The best evidence of a healed lesion is to be found in the sharp dense strands which remain stable for months under competent roentgenographic control."

With our present knowledge of tuberculosis and backed by the authorities quoted, it is only logical to include in the roentgen ray criteria for a healed lesion the following:

*(1) A stable or stationary lesion.

(2) A hard, well-fibrosed lesion.

(3) A lesion which has remained stationary or stable for months.

(4) The above three points to have been determined by a competent roentgenologist using a proper technic and a satisfactory roentgen ray plant.

Some of the clinicians of our questionnaire say that a time requirement should not be arbitrary. Others believe a time requirement advisable. The time as suggested varied from six months to three years, the average time being thirteen months. Forty per cent are of the opinion that six months is

*Clearing must be distinguished from contraction of fibrosis. Clearing occurs as retrogression progresses and the appearance of the lesion is more or less soft. When the lesion becomes delimited and hard, changes may take place slowly, extending over some years, but these changes are usually due to contraction of fibrosis.

*There is one type of healing not included in the four points mentioned above. That is the type which is entirely absorbed, leaving no trace, and is usually of the exudative type. This occurs very frequently. We believe such cases should go through a twelve-months' period of observation and exercise before considering them arrested.

sufficient. Twenty per cent suggested that one year be the time, while twenty-five per cent believe the time should be two or more years. No statistics are available to throw light on this point and only the study of a long series of cases, intelligently followed up, can give us the answer. When in doubt, it would seem more reasonable not to adopt too short a time, as a reactivation is a serious mishap and may not only take years to rectify but may also mean the death warrant of the patient. We believe a schema of classification would not go far wrong if one year were adopted, the last six months to be the try-out period.

4. A Plan for Graduated Exercise to be included in the Schema of Classification:

Our present schema of classification offers nothing in the way of a try-out to determine if arrest is complete before patients are discharged to go back to their former life. The questionnaire shows that a few place their main reliance in determining arrest on what they call the physical capacity of the patient and practically ignore the roentgen ray findings. They begin graduated exercise early, long before a healed lesion has occurred. I have seen many cases develop extensive extensions from such practice and am inclined to agree with Landis[12] who states that "when we have become convinced that the pulmonary process has become healed, then and not until then may the patient be given exercise."

The try-out period, however, with graduated exercise, is so important that we believe it should comprise a part of a future schema of classification.

We would recommend that when a tuberculous lesion, by comparison of serial roentgenograms, appears fibrosed and remains stable for six months, the patient be required to take graduated exercise for three months and, finally, the last three months be spent as nearly as possible under the patient's probable future conditions of living.

5. The Blood Sedimentation Test and the Leucocyte Count as Criteria for the Determination of Arrest:

Felix Baum[13] believes that the blood sedimentation test is above everything else in value for determination of a healed lesion.

McPhedran[14] believes that the sedimentation test and monocyte-neutrophile lymphocyte count may emphasize retrogression but if absent should not nullify roentgen ray evidence of instability.

Although the above laboratory procedures are no doubt of considerable value in determining stability and instability in pulmonary tuberculosis, we are hardly ready to include them in a schema of classification.

Another deficiency of the classification of the American Sanatorium Association is that it is based almost entirely on the extent of the pulmonary involvement. We believe there should be combined with it an anatomico-pathological classification. Since the increase of the importance of the roentgen ray, we are becoming more and more able to differentiate the well-known types of lung pathology. A quantitative classification is no longer sufficient. It is very essential that we know the type of tuberculosis present, not only for prognosis, treatment, and statistics, but for affording a common nomenclature for the clinician, roentgenologist, and pathologist.

SUMMARY

1. The present classification of the American Sanatorium Association has never been satisfactory on account of its ambiguousness, and owing to the advances made in our knowledge of pulmonary tuberculosis during the last ten years, it is doubly unsatisfactory.

2. On account of the latency of pulmonary tuberculosis and the well-being of patients following rest, without corresponding changes in the anatomical condition of the lungs, lack of constitutional symptoms should receive but slight consideration in determining an arrest. On the other hand, constitutional symptoms, if found to be due to tuberculosis, may be considered an expression of activity.

3. As it seems to have been conclusively demonstrated that physical findings, especially rales, are of no value in determining progression and retrogression of a tuberculous lesion, it follows that they have no place in a scheme of classification.

4. The roentgen ray must be considered the main reliance in determining an arrest or a healed lesion and should receive this place of prominence in a schema of classification. When by the comparison of serial roentgenograms at quarterly intervals, a lesion is found hard, fibrosed, and has remained stable for six months, we consider that an arrest has been attained provided an additional six months is passed with carefully graduated exercise and observation without reactivation of the disease.

BIBLIOGRAPHY

1. Bruns, E. H.: Parenchymal Rales in Pulmonary Tuberculosis, J.A.M.A., 1925, Volume 85, Pages 739-742.

2. Heise, F.H.C.: Rales in the Prognosis of Pulmonary Tuberculosis, Am. Rev. Tuberc., 1928, 17, p. 327.

3. McPhedran, F. Maurice: Tuberculosis in Childhood and Adolescence, Tr. Nat. Tuberc. Assn., 1929, p. 125.

4. Amberson, J. Burns: The Significance of Radiographic Mutations of the Lesions of Chronic Pulmonary Tuberculosis, Am. Rev. Tuberc., September, 1922.
5. Webb, Gerald B.: Modifications and Developments of our Knowledge of Tuberculosis during the Last Quarter-Century, Tr. Nat. Tuberc. Assn., 1929, p. 225.
6. Fahraeus, R.: The Causes of Decreased Suspension Stability of the Red Blood Corpuscles During Pregnancy, Biochem. Stschr., 1918, 533, p. 355.
7. Greisheimer, E. H.: The Blood Sedimentation Test in Normal Men and Women, Am. J. M. Sc., 1927, 174: p. 338.
8. Cutler, Jacob: The Graphic Method for the Blood Sedimentation Test, Rev. Tuberc., 1929, 19, p. 544.
9. Medlar, E. M.: Am. Rev. Tuberc., 1929, 20, p. 312.
10. Flinn, J. W. and R. S.: Am. Rev. Tuberc., 1929, 20, p. 347.
11. McPhedran, F. Maurice: A Criticism on the Current Conception of Activity, read before the American Sanatorion Association, Memphis, May, 1930.
12. Lansis, H. R. M.: Hospitalization as a Factor in the Decline of Tuberculosis, Tr. Nat. Tuberc. Assn., 1929, p. 253.
13. Baum, Felix: Questionnaire.
14. McPhedran, F. Maurice: Questionnaire.

ZINC CHLORIDE IN CANCER.—The use of zinc chloride and similar caustics in the treatment of cancer has been practically abandoned by all except the "cancer cure" quacks. Such caustics are difficult of control, so that there is destruction of healthy, as well as of malignant, tissue; their action is slow, thus unnecessarily prolonging the pain of removal. Much better results can be obtained by the judicious use of surgery when the growth is operable, or by the use of radium and roentgen rays when the disease has advanced beyond the chance of its complete removal. The use of such caustics has been abandoned also by the progressive dermatologists in the treatment of small epitheliomas of low malignancy; they use, instead, radium, roentgen rays, or coagulation with high frequency currents. (Jour. A. M. A., March 7, 1931, p. 797.)

THYMOPHYSIN.—The Council on Pharmacy and Chemistry reports that Thymophysin is stated to be a preparation of posterior pituitary and thymus, manufactured by Fritz-Pezoldt of Vienna and is marketed in this country by the American Bio-Chemical Laboratories, Inc. Because the claims for its action were inadequate, it was necessary to subject Thymophysin to examination by accurate pharmacologic methods to see whether the claims made for it are justified or whether it might not be merely a weak pituitary extract. This study was made by Prof. Erwin E. Nelson of the Department of Pharmacology at the University of Michigan. He studied the action of Thymophysin as compared with pituitary and again the action of thymus in connection with pituitary. Nelson concluded that there is no unequivocal evidence that either oxytoxic or presser activities of pituitary are altered by the simultaneous administration of thymus; that experimentally no difference could be found in the oxytoxic orpressor activities of pituitary alone as compared with pituitary plus thymus; and that Thymophysin ampules contained only about 30 per cent of the strength claimed. The Council declared Thymophysin unacceptable for inclusion in New and Nonofficial Remedies since it is an unscientific preparation marketed under false claims as to its essential action, as to its strength, and as to its safety for mother and child. (Jour. A. M. A., March 14, 1931, p. 860.)

SURGERY OF PEPTIC ULCER WITH REPORT OF FOUR RECENT CASES OF PERFORATION.

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(Presented before The El Paso County Medical Society, May, 1931.)

Surgery is indicated in only two classes of ulcer: (1) those in which the patient has been treated by a competent man for this work and has not obtained relief and (2) those cases in which the symptoms are manifested very suddenly and severely. The first type of case is one that manifests such symptoms as sour stomach, constipation, pain after eating, occasional vomiting and often a history of vomiting of blood or the passage of blood in the stools. These cases I feel belong strictly to the internist or specialist. They usually do well, many of them recovering and putting on a great deal of weight. A few others, after all methods of treatment have failed, must resort to surgery. I do not believe we should do a gastro-enterostomy when it is possible to avoid it. The other class of cases are those that perforate. I don't know what the experience of others has been, but our observation is these cases have had little or no trouble previously, none of the classical symptoms, in fact, which we have with the so-called medical ulcer. These patients as a rule have suffered but little with their stomachs and have rarely had any medical attention. The perforation usually comes on when the patient is walking the streets or is at his daily vocation. He is struck with a horrible pain in region of the stomach, as sudden as a rifle shot. His temperature drops below normal, pulse increases in frequency, the abdomen becomes rigid as a board. The diagnosis is usually easily made. We are reporting four cases which have come under our treatment during the last few months. Please note the similarity of the symptoms, and so forth.

Our method of procedure is to cauterize the ulcer, if we find one, repair the wound and use drainage for forty-eight hours if there is a perforation; if no perforation, no drainage. If it seems necessary to do further surgery, that is, make a gastrojejunostomy or gastroduodenostomy or a resection, the method is more or less a matter of choice. I would certainly not do a resection unless we had a very large ulcer about the pylorus or a large amount of cicatricial tissue. Some men are doing a subtotal resection for small ulcers. I do not think this method can be too strongly condemned. I am opposed to a gastro-enterostomy except

in cases which have had the proper medical care for some time with all symptoms persisting, such as sour stomach, pain after eating, constipation and often hemorrhage. If the symptoms are not improved I feel we are warranted in making an exploratory operation, and if you find no trouble with the appendix, gallbladder and pancreas and no definite ulcer, under these circumstances a gastro-enterostomy is the proper procedure. Formerly a gastro-enterostomy was done even for the relief of a definite ulcer; however, today the reverse is true, the ulcer is removed and the opening not made. I like a modified Finney pyloroplasty if the ulcer is not too near the pylorus. This method was the support of Judd and Horsley. Some claim the secretion of the stomach coming in contact with the jejunum is much more liable to produce ulcer about the stoma than is a pyloroplasty. We have all seen many jejunostomies after which the patients do well for a while, increasing in weight and able to eat anything; but I have seen, in some cases, after a few years old symptoms reappear and the patients suffer as before operation. Consequently, I want to emphasize again, we do not do a gastro-enterostomy except when we feel it cannot be avoided.

We shall give you briefly the method used in these four cases, three of which were perforated from two to twenty-four hours before we saw them. The ulcers in these were all excised with cautery, opening repaired, drainage instituted on account of escaped stomach contents. The fourth patient had suffered a great deal, could eat practically nothing, vomited what he ate after taking the least food. Passed blood by stools, and so forth. We did a gastro-jejunostomy and the patient was in a very weakened condition, consequently we did not interfere with the ulcer. He did well for a while but when his diet was increased the ulcer perforated and we had to do an immediate operation. We excised the ulcer with cautery and put in drainage. He had a subphrenic abscess following, which ruptured through diaphragm and was drained through the bronchi. The pictures exhibited are of this case. We had no pictures of the other three before operation. All of these patients are making good recoveries.

Case I. The first case is that of a man of 31. About half an hour before admission he was suddenly seized, while walking along the street, with a violent agonizing pain in the epigastrium, which rapidly spread downward and to the right. It doubled him up and both respiration and movement aggravated the pain. His whole abdomen felt sore and tender and he vomited once. In questioning him about previous gastric symptoms, all that I could elicit was that for a period of about two weeks just before the onset of this severe pain, and for a similar period about a year previously, he had occasional gnawing pains in the epigastrium which came on three or four hours after eating. These pains had not troubled him sufficiently to make him consult a doctor.

Physical examination revealed a rather thin man who seemed to be suffering greatly. Temperature, 96.4; respiration, 26; pulse, 64. On inspection the abdomen was scaphoid and abdominal respiratory movements were practically absent. There was tenderness and board-like rigidity of the entire abdomen, though tenderness was a little more marked on the right side. No obliteration of liver dullness could be made out. There was also tenderness in the recto-vesical pouch on rectal examination. The white count was 16,000, with 84 per cent polys.

At operation a belly full of the milky fluid usually seen in perforated ulcers was found, and there was a small perforation on the anterior aspect of the duodenum just beyond the pyloric ring. The edges of this were cauterized with an electric cautery and the opening closed by a purse string and a few Lembert sutures. One cigarette drain was left in the wound. The drain was removed after 48 hours and the patient made an uneventful recovery.

Case II. The second case is that of a man of 41. His symptoms and course are so similar to those of the first case that I shall not bother you with details. His severe pain began about 3 hours before admission and he had had practically no previous gastric symptoms. The findings, treatment, and postoperative course were the same as with number one.

Case III. The third case differs a little from the previous two. He had had, for about a year and a half before the onset of his acute illness, some gastric symptoms; namely, an occasional gnawing pain in the abdomen which usually came on an hour or so after eating and was relieved by soda or food; he had also had water brash but no vomiting. The day before admission, he woke up early with a burning feeling in his throat and took some soda which relieved it slightly. About 8 a. m. he arose and drank a glass of milk. This made the pain worse and in a few minutes it was so bad that he could not stand it. He vomited once. A doctor was called who gave him morphine and he was put on the first train for El Paso. When first seen by us he said his pain was not quite so severe as it had been.

Examination revealed a man of 24, who looked acutely ill. Temperature 100, respirations 25, pulse 94. Respirations were shallow and painful. The abdomen was scaphoid. There was marked tenderness and rigidity in the upper abdomen, especially on the right. There was little or no tenderness and rigidity in the lower quadrants. The liver dullness was obliterated. There was some question about the diagnosis in this case because of the localization of the tenderness in the upper abdomen and the fact that the pain seemed to be diminishing but we finally decided that it was a perforated ulcer.

At operation it was found that most of the milky fluid had been localized to the upper abdomen by the omentum walling it off and there was a small tab of omentum glued by fibrin over the perforation on the anterior surface of the duodenum. In fact, it was only after a search of several minutes that the perforation could be found. It was a beautiful demonstration of nature's treatment for

perforated ulcers. Our treatment was the same as in the first two cases and the patient made an uneventful recovery except for a small wound abscess.

Case IV. In this case the patient had a gastric, not a duodenal, ulcer. He came to the hospital complaining of severe pain in the epigastrium of 5 days' duration which came on soon after a dietary indiscretion. The pain was severe but not constant. It was aggravated by eating. It began in the epigastrium but radiated through to his back just mesial to the inferior angle of the left scapula and usually when the pain was at its worst his heart would palpitate. He had been vomiting practically every thing he ate for 5 days. Investigation of his past revealed that his first gastric symptoms were 2 years before admission when he had pain in his epigastrium, vomited blood and passed tarry stools. After this he had been treated medically about three times but each time he would quit his diet; and it was a heavy, highly seasoned meal which brought on the present acute pain.

Examination revealed a rather poorly nourished man of 45 who looked chronically ill and seemed to be in pain. He was vomiting brownish material which contained blood and some food eaten 6 or 7 hours previously. There was tenderness over the xyphoid and high in the epigastrium, with moderate spasm over the upper right rectus.

He was kept in bed with little or nothing by mouth for a few days and then a gastro-intestinal series was taken. This showed a large deep ulcer on the lesser curvature, and gastric retention. A few days later he was operated upon. A large indurated ulcer was found on the lesser curvature of the stomach near the pylorus. Nothing was done to the ulcer; a posterior gastrojejunostomy was done. After operation the patient did very well for a few days but as soon as he began to take any amount of fluid by mouth he began to complain of his old pain and there seemed to be a fullness in the epigastrium. The evening of the tenth postoperative day his pain became terrible and he went into mild shock. Examination revealed slight distention of the upper abdomen with marked tenderness and boardlike rigidity all over. A diagnosis of perforation was made and he was operated upon immediately. The gastrojejunostomy opening had healed perfectly but there was a large perforation at the site of the ulcer on the lesser curvature. The edges of this were cauterized and the opening closed by a purse string and two layers of Lambert sutures.

Since this operation the patient has had no gastric symptoms except on occasional feeling of fullness in the epigastrium, but he developed a subphrenic abscess and this has prolonged his convalescence. Fortunately for him the abscess ruptured through a bronchus and he expectorated the pus.

DISCUSSION

DR. F. D. GARRETT: In my opinion the first three cases described show clearly that surgical treatment was indicated and the results approved, but the fourth case would have been handled a little differently by me. This case had a retention and unless such cases are followed ten days to two weeks, we do not know whether the retention amounts to anything or not. A great many of these cases, 90 per cent of them, with ulcer near the pylorus, if put on careful treatment, will lose their spasms and their retention inside of ten days and food will be going through in the normal way. The stomach must be emptied once or twice daily during that period and plenty of glucose must be given by rectum and intravenously. Besides knowing positively whether you have retention or not at the end of ten days or two weeks, the patient will be in better condition in case you have to operate. In the particular case cited, had the patient been followed for that length of time, the ulcer would very likely have healed. I have a patient I treated over a year ago, with an ulcer fully as large as those described, with every bit as much retention of food. At the end of six weeks' treatment, she was perfectly well and has continued well up to this time, and I have seen a number of similar cases.

DR. JAS. J. GORMAN: There is nothing more dramatic than the typical ruptured -ulcer, with agonizing pain which can be read in the patient's face. If he is standing, he will be doubled over; if reclining, he will have his legs drawn up. Add to this the board-like rigidity and you have the typical picture. Less dramatic, but just as dangerous, is the very small rupture with the slow leak.

As the ulcer erodes through the mucous membrane, submucosa, and muscularis, to the peritoneum, we come to a point where a sudden strain (cough, sneezing) or the presence of an acute infection ("flu," sore throat, and so forth) may bring on a rupture. The acute ulcer is seldom guilty. Chronic, untreated ulcer is the greatest offender. Reports place ruptured gastric and duodenal ulcers as responsible for some 30 per cent of sub-diaphragmatic abscesses. The internist gets some satisfaction in the fact that the great majority of ruptures are the untreated, or inadequately medically treated, cases.

The treatment is, of course, surgical and that immediately. The longer the delay, the greater the risk, and after operation there must be close medical supervision. I regard absolute rest in the early stages as essential—rest from persistalsis and rest from secretory activity. Nothing by mouth for from three to four days, depending on the condition of the patient, except that thirst may be alleviated by a drachm of water hourly, increasing as indicated. Paraffin or gum may be chewed. Fluids, however, should be given by other methods in large amounts. If the condition of the patient requires, retention enemas or the Murphy drip may be given. Treatment can be raised rather rapidly to ambulatory and this continued from two to six months or longer, depending on the case in question.

As to the method of procedure in the case operated which later ruptured, I feel that the case was surgical from the outset. The retention, to be sure, could probably have been relieved medically; however, the fact that this man was a laborer requires consideration of the economic situation, namely, to return him to work as soon as possible. In the second place, the x-ray shows his to be a perforating ulcer on the lesser curvature, the most common site of rupture; and, third, the size of the ulcer in a man of forty-two years of age must necessarily cast a suspicion of malignancy.

DR. F. P. MILLER: The type of case Dr. Ramey mentioned—the acute perforation where previously no sumptoms had been present—is fairly common for that type of duodenal and gastric ulcer, especially duodenal. I have had three cases where men have been treated over long periods of time, one who had the advantage of medical treatment in three or four medical centers. Recently I had the pleasure of reviewing an abstract on some of the literature on the medical and surgical aspects of this subject and it seems that surgery is by no means on the defensive in this treatment.

DR. W. W. WAITE: I have seen three cases,

operated in the clinic in 1927, and all seem to suffer just as much as they did before operation.

DR. GEORGE TURNER: As Dr. Gorman said, acute gastric ulcers do not perforate. Gastric ulcers will give symptoms early, will give symptoms of hyperacidity, characterized by gastric pain, and so forth, before there is any weakening in the stomach and before anything can be found with the x-ray other than a hypermotility of the stomach. This is the time to treat gastric ulcer medically and is the time to cure the patient medically. Later, after the ulcer damages the muscle layer in the stomach wall and you get an ulcer that you can see with the x-ray, which does not come until after the muscles of the stomach have been destroyed, you have that type of ulcer which is apt to perforate. As it grows larger, the question of malignancy comes into consideration. The type of duodenal ulcer that usually perforates is in the patient seized with sudden pain who will give no history of gastric distress. A lot of these cases when suffering severe pain will give negative history so far as gastric symptoms are concerned, but operation will show, or other symptoms will indicate, the true nature of the condition.

DR. CATHCART: In regard to nonmalignant gastric ulcers, I think most of these cases recover under medical treatment. If they are x-rayed every ten days and the ulcer becomes smaller and disappears at the end of thirty days, the question of malignancy is ruled out. If the ulcer is large and remains without becoming noticeably smaller after this treatment, it is probably malignant. When it comes to duodenal ulcer, the chronic ulcer—which is the type most commonly encountered—with a definite filling defect shown by the x-ray and remaining constant and irritable over a long period of time after medical treatment, may be included in the surgical division, but a great many duodenal ulcers that bleed give very little filling defects early. These practically all recover under medical treatment with very little scar formation. Where there is very definite scar formation that exists over a long period of time with irritation, I believe these cases should be classed as surgical.

DR. BAKER (closing): I think the discussion has fully covered the subject, but would like to answer Dr. Waite. I am sure that all of you are acquainted with the work done at Mt. Sinai Hospital in New York demonstrating a resection of the pylorus, leaving the duodenum intact, but closing it and the joining the stem to the ileum. If symptoms should recur, the patient would be in great deal better condition than when first operated and it would not be very difficult to perform a secondary operation.

DR. RAMEY (closing): There is one thing I want to say in reply to Dr. Waite and that is that I know of no operation on the stomach that will guarantee relief to the patient forever. He seems to think there should never be a recurrence of an ulcer. I know of no operation that can be done that will guarantee you will not have an ulcer sometime afterwards. I have seen the entire stomach removed, even for a very small ulcer, but that carries a very high mortality and I am not in favor of it at all. In regard to the case Dr. Garrett questioned, perforation was so near complete that I believed we would have to operate upon him later anyway, and we did at that. The only mistake in my opinion was that we did not resect the ulcer at the time. As to Dr. Turner's remarks, it is a fact that cases of duodenal ulcer perforate without any warning whatever.

TOXEMIAS IN THE EL PASO CITY-COUNTY PRENATAL CLINIC

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(Presented before El Paso County Medical Society, April 13, 1931.)

Toxemias of pregnancy are generally understood to be those disorders occurraing at the time of gestation and probably caused by the accumulation within the maternal blood of toxins or poisonous substances derived from the fetus or placenta which are neither neutralized by the organs of metabolism nor eliminated by the excretory organs. Many authors believe that every pregnancy is attended by an autointoxication, due to the extra load on the general metabolism and that there is not a specific toxin.

Much work has been done in the past few years to discover the underlying conditions of this toxemia, some results of which will be of great value when the syndrome is finally worked out. Before I give the results of the work in our clinic I shall endeavor to give a brief summary of the work being done and the results being obtained in some of the large clinics and hospitals.

Titus and associates[1] offer conclusive explanation for the beneficial effects of intravenous glucose injections in eclampsia. They report nineteen eclamptic cases in which the blood sugar was examined every five minutes before, during and after the attack. The results showed a characteristic sharp fall in blood sugar just preceding the convulsion. They call this a period of relative hypoglycemia, meaning by that a level of blood sugar which, in relation to the levels shortly before, is relatively hypoglycemic, while its values in actual figures may be around normal. This is said to be similar to the hypoglycemic reaction from insulin occurring at blood sugar values of more than 200 mg. They believe a glucose impoverishment within the erythrocytes is the outstanding feature of this period. They believe that hypoglycemic levels are a predominant and fairly constant feature of true pre-eclampsia, therefore, the intravenous administration of dextrose without insulin is specific treatment for eclampsia and pre-eclampsia.

T. J. Stander and Harrison of Hopkins, did not find a hypoglycemia in a study of nine eclamptics, and are not convinced that glucose is a specific. Titus, in a detailed discussion of this paper, shows that his work was repeated in only one case by Stander.

Stander, Eastman and Harrison[2], in another series of papers, discuss the acidosis of pregnancy. They speak of a compensated

alkali deficit of normal pregnancy. During normal gestation there is a reduction in total base amounting to about eight milligrams. However, in eclampsia, at the time of convulsions and coma, there is a true acidosis dut to an uncompensated alkali deficit, as demonstrated by a definite increase in the hydrogen-ion concentration. This acidosis is not considered a causal factor, but a result of the convulsion and is the cause of death if not relieved by administration of alkali. Because of this acidosis he repeats a warning against general anesthesia.

As the liver is one of the primary organs involved in these toxemias, it has also received much investigation. All the known function tests have been run, in both normal and toxic gestations. The use of liver extract in the toxemias of pregnancy is praised by Miller and Martinez, who report a series of 43 eclamptics with a mortality of 6.9 per cent. Mendenhall and Smith reported poor results. J. L. Reycraft used heparmone in fifty toxic cases and feels that it has definite value in the hepatic cases. In a few cases alarming symptoms develop from the use of heparmone.

The kidney comes in for its share of continued investigation. John C. Hirst[8] of Philadelphia has given us a very complete paper on the kidney of pregnancy. He uses only two classifications of the toxemia:

A. The acute late gestational toxemia characterized by rapid onset late in pregnancy with good dye elimination, high urinary specific gravity and complete recovery within three months.

B. Chronic late gestational toxemia featured by gradual onset, earlier in pregnancy frequently as an exacerbation of prior hypertension, often seen in multiparae, poor dye elimination, marked eye round changes, low urinary specific gravity and incomplete recovery in three months. He believes that vasodilitation and circulatory stasis of the ureter may directly or indirectly be concerned with late gestational toxemia.

Edward J. Stieglitz, of the Chicago Lying-In Hospital, reports on sixty cases of nephritis in pregnancy in his service during the last three years. He states that the term "low reserve kidney" popularized by Stander is better called the syndrome of tissue and renal fatigue in pregnancy.

A. This group is characterized by slight arterial hypertension with only moderate albuminuria and prompt recovery.

B. The eclamptic and pre-eclamptic intoxication.

C. The toxic case in which pre-existent renal and/or vascular disease has reduced the renal reserve, with exacerbation of these processes by pregnancy.

He states that the eclamptic group is probably most safely and efficiently treated by termination of the pregnancy in the pre-eclamptic phase. Pre-existent renal and vascular disease is permanently exacerbated and degenerative processes accelerated by pregnancy. Prognosis is based chiefly upon promptness and degree of improvement following obstetric delivery.

Schwartz and Dieckmann of St. Louis outline their conservative treatment of eclampsia. They recognize that mild cases if treated radically will show an increase in the mortality rate, and severe cases treated conservatively will continue to show a definite mortality if early death of the fetus does not take place or delivery occur. Difficulty persists in the early decision as to the severity of the case before too much damage is done. Their treatment includes the use of intramuscular injections of magnesium sulphate, colonic irrigations, gastric lavage, leaving 60 c.c. of a saturated solution of magnesium sulphate in the stomach and most important, frequent intravenous injections of 20 per cent glucose, 500 to 1000 c.c. each.

The results show that mild cases recover under any conservative treatment, but in the severe type recovery is markedly favored by early death of the fetus or delivery. If under treatment there is no satisfactory diuresis, coma and pulse are increasing, then delivery must be completed in a short time without additional shock. If this cannot be done readily through the natural passages, then abdominal cesarean section under local anesthesia.

In contrast to this, DuBose[5] of Selma, Alabama, advocates cesarean section as the treatment for eclampsia. He reports 100 operations, 60 per cent of which were eclamptics with a mortality of 2 per cent, which were not a result of the operation. His cases were all unfavorable, having been sent in from the country after having convulsions and vaginal manipulations. Previous to this series he had 10 per cent mortality under the different conservative treatments.

Dorsett[6] of St. Louis using the glucose and magnesium sulphate treatment had a mortality of 7 per cent in 186 cases of eclampsia. Cesarian section was done only nine times in this series.

McConnell[7] of Louisville goes a step further and uses continuous intravenous administration of glucose. A cannula is anchored

in the vein and 200 c.c. of 10 per cent glucose given every hour. This may be continued over a period of several days if necessary.

Kellogg[8], of the Boston Lying-In, urges the the universal adoption of Stander's classification, namely:

1. Low reserve kidney.
2. Nephritis complicating pregnancy.
3. Pre-eclampsia and eclampsia.

His report covers seven years of the clinic and 1100 toxemic cases. The only improvement in results during this period had come from active interference before the convulsive stage in the toxemia patients and before there was marked kidney damage in the nephritic group. A very significant finding was a group of 225 patients seen in two pregnancies, in which only 20 per cent were normal throughout the second pregnancy. Follow up work done by other men, namely Greenhill, Gibberd and Schmeckel, in similar large series of eclampsias, showed a similar large per cent of recurrence, but somewhat less than this figure.

Robbins and associates[9], report eight cases of eclampsia treated with sodium amytal. Moore[10], adds four more cases with favorable comment. DeLee and others think the drug dangerous and find the results disappointing.

E. Borczi[11] maintains that pregnancy toxicoses are due to congenital hypo-function of the ductless glands, especially the thyroid and advises the administration of thyroid as a preventative against eclampsia.

G. Baumgart[12] prevents eclampsia by putting patients to bed and giving them a three-day hunger and thirst cure.

In five eclamptic patients a considerable amount of blood was withdrawn by F. C. Irving and J. V. Taylor[13], the plasma was removed, the corpuscles were washed and reinfused and all the patients recovered.

A very complete report of the toxemias occurring in the city of Philadelphia in a period of fifteen months has just been published by Schumann[14]. There was a total maternal mortality of 5.4 per cent in the cases under prenatal observation and 21.5 per cent of all women having convulsions or coma.

In order to have a basis of comparison for the work done in our clinic I shall give briefly the report of the Maternity Center Association of New York. This report covers eight years and the records of 4,726 women. About an equal number of women were delivered at home and in hospitals. Physicians attended about three-quarters of the cases. Bellevue Midwife Service 17 per cent and other midwives 7 per cent.

In this group of women 15 per cent showed albuminuria, with or without some other symptoms; 5 per cent had high blood pressure only; 13 per cent had some other symptoms, such as edema, elevated temperature, bleeding, etc., while 0.8 per cent had a definite toxemia. In all, about one-third of the total number of cases had one or more symptoms of abnormality at one time or another during pregnancy. There were eleven maternal deaths showing a per cent three times better than in the cases in the same district without prenatal care. There were no deaths due to eclampsia.

In contrast to this, in our clinic, a large majority of cases were delivered at home and by midwives. These midwives, with a few notable exceptions are poorly trained and their work was done under the most difficult conditions. Physicians who were not particularly interested in obstetrics were called in consultation after many mours of labor and poor management. Some of the most difficult cases were sent in to the hospital either by the clinic or the physician called. Taking all this into consideration, I believe the results of the prenatal work done in this city have been very good. These cases have practically all been followed up by the clinic nurses who made a record of the delivery and post partum condition and saw to it that they returned for their final examination. Therefore, I feel that the records and estimate of results are accurate.

Over a period of six years there were 2,839 women in the clinic, not counting those who were not pregnant, who had a gynecological condition or who were lost to the clinic. Of this number 464 had only a post partum examination, leaving 2,375 who had some degree of prenatal care. I will not go into detail as to the number of visits of each or the month at which they first came.

J. Whitridge Williams states that 50 per cent of the pregnant women show evidence of toxemia which he classifies as pathologic. In these cases 1090 women, or 46 per cent showed at least one symptom of toxemia.

Of these, by far the largest group (595 women or 25 per cent of the total) had albumen in the urine with occasional moderate or slight edema and no other symptom. The blood pressures were normal in this group. There were five still births, two prematures and six abortions. There were ten positive Wassermanns which account for a considerable number of these. Instruments were resorted to in three cases with living babies.

A blood pressure of 130 systolic or over was arbitrarily chosen as abnormal. The next group, consisting of 242 cases or 10 per cent, recorded one or more abnormal blood essure readings. Some of these pressures ran as high as 170 occasionally, but most of them varied between 135 and 150 systolic. There were very mild or no toxic symptoms and the urine was consistently negative throughout. The records show five instrumental deliveries, five still births, one premature, two abortions, one case of phlebitis and three positive Wassermanns.

You will note that I have made no classification of the cases of hyperemesis gravidarum. In the first place they should not be classified as true toxemias of pregnancy, and secondly, in our clinic this group was conspicuous by its absence. The records show only a few cases of vomiting and they could not be truly called pernicious. A patient was sent to the county hospital last week with severe vomiting of early pregnancy. She recovered in three days under intensive treatment. Evidently this complication is rare among the Mexicans.

The next classification I have made included those cases with a blood pressure of 130 systolic or more, albumen one or more times and mild or moderate toxic symptoms. In this group there were 218 women, or 9 per cent of the total cases. There was one maternal death from pneumonia on the third day post partum, four still births, two abortions, one version and two forceps deliveries, two positive Wassermanns. I should like to add that Wassermanns have not been run routinely but only on those cases where it seemed to be indicated clinically.

That leaves us with a group of 35 patients or 1.5 per cent who have severe toxemias. Of this number the pregnancy terminated in 23 cases at home and 12 in the hospital. There were 11 still births and four abortions in these 35 cases. Three abortions were spontaneous in severe chronic nephritic cases; one therapeutic abortion in a primmipara with blood pressure of 230 over 140 and history of kidney disease.

There were 17 normal deliveries of which seven were in the hospital. There was one version and two instrumental deliveries in the homes with living babies. In the hospital there were five operative cases, two instrumental, two bag inductions and one craniotomy.

In these 35 women with severe toxemias there were only six, or 0.2 of one per cent who had convulsions. Of these six all but one were delivered at home and without a single fatality.

No. 1. This patient had a pressure at the last reading of 160 over 100, albumen positive once out of three examinations. Normal delivery.

No. 2. Only one visit to clinic. Blood pressure 126 over 78, urine negative. On investigation she was found to have had convulsions. Normal delivery, still birth. This was a very rapid fulminating type.

No. 4. Blood pressure 156 over 98, albumen moderate, very marked edema. Patient was sent to the hospital and labor induced with castor oil and quinine. Normal delivery, still birth. She had convulsions four hours after delivery.

No. 5. Blood pressure rose from 104 over 64 to 160 over 100, urine showed albumen at last examination. She had one convulsion. Delivered of live baby with low forceps.

No. 6. The highest blood pressure reading was 145 over 90, urine negative. Edema very severe. Five days later she had one convulsion. Normal delivery of live baby.

Out of these 35 cases there were two maternal deaths:

No. 1. Blood pressure 128 over 74, albumen heavy in each specimen, marked edema. History of two miscarriages. Wassermann negative. She had a very large baby, was in labor two days with rising temperature. Craniotomy was done followed by death from puerperal sepsis.

No. 2. Blood pressure ranged between 160 and 140 over 96. Lrine showed traces of albumen and only moderate toxic symptoms. Normal delivery of a living baby. Mother died of heart disease.

This report tends to stress the importance of prevention of toxemia. I believe there is a tendency at the present time in the average doctor's office to neglect the other important features of the prenatal case. I would like to emphasize that the routine taking of blood pressure and urine examinations does not constitute adequate prenatal care. That is only a small but important part of a careful observation of the expectant mother.

SUMMARY

During six years of this clinic there were 2375 women who received prenatal care. Of this number 46 per cent showed at least slight evidence of toxemia; 25 per cent of the total cases showed albumen in the urine with no other symptoms; 10 per cent had only a rise in blood pressure and 9 per cent a mild toxemia. There were 35 women, or 1.5 per cent with severe toxemia and in this number six cases of eclampsia, or 0.2 of one per cent. There were no maternal deaths due to the toxemia of pregnancy.

REFERENCES

1. Titus, P. Willetts, E. W. and Lightbody, H. D. Am. Jour. Obs. & Gyn.. 19:16 (Jan, 1930).

2 Stander. H. J., Eastman, N. J., and Harrison. E P .H., Jr., Am. Jour. Obs. & Gyn., 19:26 (Jan., 1930).

3. Hirst, J. C., Am. Jour. Obs. & Gyn. 18:528 (Oct., 1929).

4. Schwartz, O. H., and Dieckman, M. J. Am. Jour. Obs. & Gyn., 18:515 (Oct., 1929).

5. DuBose, F. G. Am. Jour. Obs. & Gyn., 18:653 (Nov., 1929).

6. Dorsett, E. L., Am. Jour. Obs. & Gyn., 19:709 (May, 1930).

7. McConnell, W. T. Am. Jour. Obs. & Gyn., 21:250 (Feb., 1931).)

8. Kellogg, F. S. Am. Jour. Obs. & Gyn., 21:275 (Feb., 1931.)

9. Robbins, A. R., McCollum, J. T. C., Mendenhall, A. M. and Zerfas, L. G. Am. Jour. Obs. & Gyn, 18:406 (Sept., 1929).

10. Moore, J. H. Am. Jour. Obs. & Gyn. 19:544 (April, 1930).

11. E. Borczi, Centralbl. f. Gynak., 53:209 (1929).

12. Baumgart, F. Zentralbl f. Gynak., 53:209 (1929).

13. Irving, F. C. and Taylor, J. V. Am. Jour. Obs. & Gyn. 17:767 (June, 1929).

14. Schumann, E. E., Am. Jour. Obs. & Gyn., 21:381 (March, 1931).

CASE REPORT: CALCINOSIS OF THE LEGS

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(Presented before El Paso County Medical Society, May 11, 1931.)

An American woman, past 50 years, housewife, was referred to me by Dr. C. H. Mason. She was complaining of swelling and pain in the whole left leg, causing almost complete disability. This was of several weeks' duration and had grown progressively worse.

Past History: She has enjoyed good health all her life. No severe illness. No operation or injuries. A very hearty eater, especially of meats of all kinds.

Family History: Married, one child living and well.

Physical Examination: Good musculature and well nourished. No pathology about head or neck, no goiter. Skin clear. Left leg swollen and painful to touch and movement. This pain seemed to follow the superficial veins to the groin. Veins seemed small and did not fill well in dependent position. From the knees down, many small movable subcutaneous small bodies, the size of a grain of wheat and smaller, were felt. These were very tender. There was hyperesthesia in other parts, especially over the abdomen.

The anterior and posterior tibial arteries pulsated normally. The general examination showed nothing abnormal. The urine was normal; Wassermann negative; Hb., 90 per cent; blood chemistry normal, except low calcium, 7 mg. per 100 c.c. Basal metab., —17 per cent. Skin tested for food allergy revealed but little.

X-ray showed bones of good density and normal periosteum. There were dark spots corresponding to the physical findings, but they were not connected with the bone shadow. One of these bodies was excised by Dr. W. L. Brown and seemed to be without connection with the veins, arteries, or other structure than connective tissue. The bodies were hard and felt like calcium. Dr. Waite examined them and noted no abnormal tissue. Upon crushing and adding acid, there was liberation of gas and calcium carbonate was present.

A diagnosis of calcinosis was made. In a case of Wilens and Derby, (American Journal Dis. Children, Jan. 1926) that of a child of 5 years, the pathology was studied postmortem. Blood vessel changes, were marked. The endothelium was thickened and frequently bulged into the vessels. There was perivascular infiltration and fibrosis of the arterial walls. In the subcutaneous tissue there were changes in the fat lobules, between the fat cells, and often at the periphery just within the fat cells, lime occurred. In some cases the deposition of lime seemed to extend from the fat into the connective tissue. The connective tissue around the blood vessels and the nerves was not calcified. There was no fat necrosis. The initial lesion could not be identified.

Some cases have simulated Raynaud's disease. In our case no peripheral arterial disease was made out. Phlebitis was suspected but could not be demonstrated. Other subcutaneous nodules in the thigh were very tender but x-ray showed nothing. Cellulitis sometimes precedes calcinosis.

Cases of calcinosis are quite rare. The Mayo Clinic (Med. Clin. N. A., Jan., 1925, p. 1273) has reported 38 cases of calcinosis in the lungs. Such deposits have been found in various other organs, such as the stomach, kidneys and heart. Frost bite is quite a common cause of calcinosis about the ear and other exposed parts.

Calcium metastasis occurs in some cases of sarcoma, in multiple myeloma, scleroderma, and in hyperthyroidism and hyperparathyroidism; in myeloma, hypertrophy of parathyroid glandular tissues have been found.

Calcium in the blood is held in solution by protein especially, also by carbon dioxide. With an increase of protein in the blood, there is apt to be also an excess of calcium. This may throw some light on our case, because she was a heavy meat eater. However, at the time we saw her, the blood calcium was low. Calcium has a tendency to be deposited in the aorta, the coronaries, brain and splanchnic and renal arteries, where the carbon dioxide is low. In calcinosis the general opinion seems to be that the local condition of the tissues, in some way, by lack of protein or carbon dioxide, causes the calcium to be precipitated out of the blood locally.

The prognosis of calcinosis in children is very bad. In older people it is fairly good, because it is more local and circumscribed, but the disease grows progressively worse. In our case improvement occurred while thyroid was given but it was probably a mere coincidence. She was also on a low calcium diet and such foods as gave allergic reactions were eliminated.

Dr. W. H. Goeckerman, of the Mayo Clinic, in answer to an inquiry as to the treatment of calcinosis writes:

"This is a rare condition and very interesting scientifically but I know of very little that can be done for it. Occasionally we have excised such an area if it has been especially troublesome. I doubt very much that medical treatment will benefit such a patient."

CASE REPORT

(Cerebral Embolus Following Lynch Radical Frontal Sinus Operation, with Recovery.)

D. R. GASKINS, M.D.
Phoenix, Arizona.

(Presented before Staff Meeting of St. Joseph's Hospital, Phoenix, Ariz.)

I am presenting this case because to me it shows a very interesting chain of events following a radical frontal sinus operation.

A white female, age 39, with a negative family history, came to office complaining of sinus infection accompanied by pain, profuse dsicharge and nasal obstruction.

Past History was obtained from sister. As a child the patient was never well, having epileptic convulsions at the age of three, which have continued up until the past year. At the age of 14 the patient began having asthma, intermittent in character, but has never been entirely free from these attacks since the original onset.

Present Illness: About four years ago the patient began to have a marked sinus infection with complete nasal obstruction. She noticed that large tumor masses were beginning to protrude from the nose. She went to a local specialist, who for the following two years removed nasal polypi from time to time as they became large enough to be seen. After approximately two years of this procedure the patient went to Iowa City and had an intranasal ethmoidectomy performed upon the left side, which was followed in about three weeks by a radical Caldwell-Luc operation upon the corresponding antrum. For some reason or other nothing was done at this time on the right side. Patient obtained temporary relief from this procedure, but her asthma was only slightly improved and in about six months she began to have pain over the right frontal sinus and very severe attacks of asthma. She returned to Iowa City at intervals for slight operative procedure, and treatment, but was never able to obtain more than temporary relief. About this time the patient began to notice that she was having definite progressing blindness. This progressed very rapidly for a few weeks, but then began to clear up. About eight months ago, following the advice of her physician, she came to Phoenix hoping to get some relief from the dry climate. She immediately consulted a specialist, who advised a bilateral operative procedure, which the patient refused. Patient came to me about three months ago presenting the following findings: Partial intranasal ethmoidectomy had been performed on the left side, but a few polyps were seen in the region of the orbital ethmoids. The left middle turbinate had been removed and the inferior turbinate mutilated and scarred. No opening could be found into the left antrum, on which antrum the patient claims to have had a radical external operation. The entire right side was filled with polyps.

This is a very typical history, with which every oto-laryngologist is familiar. Phoenix is rapidly becoming the dumping ground for patients with extreme sinus infection, who have run the gauntlet of surgical procedures and finally, out of sheer desperation, come to Arizona after they have been advised that the hot dry climate is their only salvation. The question again comes up as to what is the correct procedure for this type of case. There is no doubt in my mind but that the condition is the end result of a definite allergy since childbirth. However, she was given the pollen and food tests in Iowa City, which were negative. We must then think of bacterial allergy and of Duke of Kansas City, to explain this phenomenon.

In the process of degeneration, with marked round cell infiltration, degeneration of the normal epithelial cells, arrest of function and casting off of the ciliated cells occur. There is perversion of the function of the few gland nests that normally exist, with polypoid formation of hyperplastic degenerative tissue. Nor can we facilitate the return to normal even by ample ventilation or drainage, or both, when the membranous lining of the cavity has been the seat of a chronic degenerative process of inflammation which has lasted for months or years. It ceases to be a mucous membrane. It is now a pathological membrane so distorted in its function as to have nothing in common with the normal.

In this state we see, day after day, the secretion we call pus, associated with polyp formation or hyperplasia. I cannot understand why we try to preserve this pathological state by methods of treatment which we term conservative, and in the next breath preach the total removal of the tonsil because the least remnant left will reproduce itself and cause both local and constitutional phenomena. I am becoming firmly convinced that once the lining membrane is degenerated to the point of chronic pus formation with polyps, or hyperplasia without pus, no amount of ventilation or drainage will bring it back to normal. In this state it becomes one of the most fertile sources for a secondary toxemia with symptoms that cover every field of medicine. The lymphatic drainage ways are free and numerous and the only way to deal with such degeneration is to replace it with normal mucous membrane (which is as yet impractical), or with scar tissue.

For these reasons, I cannot see why there should be a cry about preserving such tissue in the cavity. One makes no attempt to do it in other surgical procedures. The only difference is the locality. Certainly the function allotted to the accessory sinuses in man is not of a very high order, and living is coverted into one of comfort when a patient is relieved of this membrane by an operative procedure which has for its purpose the removal of every vestige of mucous membrane, not only from the frontal, but from the ethmoids, sphenoids and antrums as well.

This was carefully explained to the patient and she was given to understand that if she was going to obtain any relief, she would have to go through a long series of radical procedures. The right antrum was injected with lipiodol showing almost complete obliteration of the cavity by thickened polypoid membrane. Intranasal ethmoidectomy was performed, completely removing the middle turbinate and resecting the anterior wall of the sphenoid. As the sphenoid was opened, foul smelling pus was discharged, so disagreeable that the operation was suspended for a few minutes. Following this, a radical Caldwell-Luc operation was performed upon the right side. At the end of ten days the patient had made complete recovery and stated that she felt better than she had in many years and that she was absolutely free from her asthma. Pain over the left frontal area was very persistent, however, and she was very anxious to have this sinus cleared up before returning to Iowa. X-ray examination revealed a very large cloudy left sinus. The right frontal was very small and apparently not involved. April 28, a Lynch radical frontal was performed. The frontal sinus was found to be completely filled with pus and a few large polyps were found around

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TUBERCULOSIS AND ATELECTASIS

Our special tuberculosis number this month presents four papers of superior quality. Dr. Flinn has written on the old and often carefessly handled principle of rest in a way which should make it stick in our minds. The technic of examination for intestinal tuberculosis has been masterfully presented by Dr. Davis. Dr. Fales has written a good complement for Dr. Flinn's paper in giving the criteria of arrest in tuberculosis. The paper which is most likely to miss its mark is the one on atelectasis by Dr. Gatterdam, because the ideas advanced are not yet generally recognized. It is, therefore, chosen for some extended and supplementary remarks, aimed at reinforcing the conclusions advanced by the author.

Atelectasis has been a frequent subject in medical writings, particularly since 1925, but sparse indeed are the references to the condition as an accompaniment of tuberculosis. Sewall, in 1921, wrote on Pulmonary Atelectasis as a Source of Confusion in Physical Examination of the Chest.

He stated that atelectasis is probably found in every healthy lung suffering restriction of activity, and must be borne in mind in every physical examination of the chest. The term means "imperfect extension" which is a correct rendering of the etymology, since atelectasis does not necessarily predicate a complete collapse and airless condition of the pulmonary alveoli but any reduction in volume of air below their normal state. Three stages of atelectasis should be considered. The first is physiological and temporary and occurs in any portion of the lung where inspiratory movement is deficient. The second stage represents a more of less complete collapse of the air cells within a definite area; this condition comes almost daily under the observation of the clinician, but its conscious recognition is probably rare. The third stage represents a complete collapse of air cells in a considerable area of lung, closely simulating the condition of consolidation. For a variable period after a portion of lung has been rendered airless, it may be reexpanded, but if collapse continues, the lung tissue atrophies and the area becomes a solid mass.

In spite of Sewell's adjuration of ten years ago to "think atelectasis," clinicians have until recently, given little thought to the possibility of this condition. The importance and timeliness of Dr. Gatterdam's paper cannot, therefore, be overstated. Below, we briefly review some of the important papers of the past two years on this subject:

Lee and Tucker (Atlantic Med. Jour., Feb., 1928) writing on Postoperative Pulmonary Atelectasis, quote Mastics to the effect that "pulmonary atelectasis, partial or massive, is a common post-operative pulmonary complication, and that no doubt the the majority of the conditions which have been regarded as aspiration or postoperative pneumonia, bronchitis, bronchial pneumonia, have been cases of atelectasis. Mastics suggests four clinical types; (1) the fulminant or massive, (2) the moderate, (3) the late or mild, (4) the transient type. Lee and Tucker suggest an anatomical classification into, massive, lobar, and lobular. The first, or massive, is the one usually referred to in the current literature; the second is found more frequently in medical or roentgenologic literature than the surgical; the third type has been previously described as partial atelectasis, and is the same as the evanescent type of Mastics. Following this is a very excellent description of some experimental work.

Elkin, (Sou. Med. Jour., April, 1929) gives a very excellent historical summary of atelectasis. The name was suggested by Jorg in 1832 to denote a failure of expansion in the newborn. Lichtheim, in 1878, showed that the residual air would be absorbed if the bronchus were blocked. The observations of Wm. Pasteur, beginning in 1880, mark the beginning of the modern conception of this condition; in 1910 he called attention to the fact that lung col-

lapse frequently followed operations, but held to the theory of diaphragmatic paralysis and failure of inspiratory power. In 1925, Scott and Churchill, advanced the idea of combined bronchial obstruction and weakened respiratory force. Since that time there have been numerous articles on all phases of the subject.

Cocke, (Sou. Med. Jour., March, 1929). Though no uniform classification has been adopted, he suggests the following rough grouping: (1) Pasteur's post-diphtheritic diaphragmatic paralysis. (2) Postoperative massive atelectasis, and that following chest wounds, whether penetrating or not. (3) Those due to obstruction (tuberculomas, neoplasms, foreign bodies, or mucus). (4) Those due to infections (diaphragmatic pleurisy, pneumonia, purulent bronchitis, tuberculosis. (5) Congenital.

Bowen, (Am. Jour. of Roent., February, 1929) gives as the outstanding figures in the study of atelectasis,—Sir William T. Gairdner, Dr. William Pasteur and Dr. Henry Sewall. Gairdner, when a youth of 26 and pathologist in the University of Edinburgh, wrote an extended treatise on lung collapse, and much therein remains unimproved to this day. Pasteur in 1890 published his paper on respiratory paralysis after diphtheria, and followed this at intervals with several papers on lung collapse, and to his final contribution in 1914 little has been added in point of description and diagnosis. Sewall's contribution owes its importance to the fact that he carried his studies along physiological lines, following Gairdner. Willshire and Lichtheim, and related it particularly to physical examination of the chest with regard to pulmonary tuberculosis. In this field, Sewall's contribution, until recently has stood almost alone. Bowen's paper is a very complete study of massive collapse and has an appended bibliography of over two hundred references.

Bowen has a shorter article in the Penn. Med. Jour. of Feb., 1930, on the hazard of atelectasis in diagnosing pneumonia; he closes with the statement that "the patient who, in his first hundred postoperative hours, develops a lung complication does not, in the very greatest probability, have postoperative pneumonia. The physician should think of collapse."

Chas. H. Cocke (N.E.J., of M., Oct. 31, 1929), discusses Massive Atelectasis. He states that his conception of the condition is that of development either suddenly or more chronically of airlessness in a lung, or portion of a lung, previously well aerated. He does not think that bronchial obstruction is always the cause, citing instances from reported cases where no obstruction could be found. He comments on the very few reports of atelectasis as complication in non-surgical conditions, but cites reports of cases in this group by Packard, Norris and Landis, and others. The difference between the mechanism of atelectasis and that of pneumothorax is discussed and since the term "collapse" has become associated with spontaneous and therapeutic pneumothorax, it is confusing to use the same term in describing atelectasis. He cites the case reports of Mohler and says "he likewise remarks on the paucity of case reports of its actual occurrence in medical conditions." He states again "Wilson J. L., describes a case of hemoptysis in tuberculosis followed by massive atelectasis with recovery of the clot and reinflation of the lung after removal of the bronchial cast causing obstruction,—certainly a rare observation." He continues, "While this brief discussion deals primarily with the condition as massive atelectasis, undoubtedly varying degrees of the conditions exist from lobular, through lobar, to complete atelectasis of an entire lung . . . I agree with Miller, J. A., who, in his discussion of Packard's paper, said that in the past we must have classed as massive fibrosis of the lung and pleura conditions which are today undoubtedly suggestive of massive atelectasis." Cocke does not believe that bronchial obstruction must necessarily be present to produce atelectasis. A paralyzed diaphragm will produce it.

Colorado Medicine of November, 1930, has a symposium of six articles on atelectasis.

Sewall discussed the physiology of the process, after a brief historical survey. He calls attention to the fact that the terminal bronchioles have lumina of only 0.18 mm. (1/25 of an inch), and these open into air sacs the smallest of which are one mm. (1/25 of an inch) in diameter, so that it would almost seem that atelectasis would be the habitual thing in the resting lung. Furthermore, according to Sir Arthur Keith, a man of sedentary occupation does not use more than one-tenth of the lung tissue available for respiration; also that of the five areas on the surface of the human lung, three are in contact with stationary structures and therefore cannot be exparded. The non-moving lobule represents almost solid tissue speckled inside with microscopic bubbles of air. It may be concluded, therefore, that near atelectasis is a normal condition of lung tissue. Atelectasis is doubtless a concomitant of well night every pulmonary trouble. Not all parts of the lung are equally susceptible of atelectatic collapse; when involved in atelectasis, the outer zone to a depth of one to one and a half inches is where the consolidation is most complete. With the advent of disease, as in a lobular pneumonia, or parenchymatous tuberculosis, there is reason to suspect that local atelectasis is a constantly concomitant condition, and perhaps is a defense reaction attempting to immobilize a tissue in which motion would exaggerate the inflammatory disturbance.

Johnson discussed the pathology of atelectasis and its relation to pulmonary infection. He calls attention to the frequent observation at autopsy of small patches of collapse, usually lobular in extent and generally ascribed to bronchial obstruction. He states that massive collapse is due to a combination of bronchial obstruction and diminished force of respiration. Many factors may combine to weaken the respiratory efforts, such as pain after abdominal operations, unfavorable posture, tight dressings, abolition of cough reflex, mechanical interference with diaphragm, and many others.

Allen gives a very excellent discussion of the x-ray diagnosis. The behavior of the diaphragm must be studied following operation, if atelectasis is suspected. If there is a definite ascent of the diaphragm on one side, it will indicate actual or impending atelectasis. The x-ray signs of atelectasis embrace the displacement of heart, mediastinum and sometimes tracheal shadows toward the affected side, high diaphragm on the affected side, decreased radiolucence of the atelectasic area, increased radiolucence on the opposite side, narrowing of rib spaces, affected lung curves toward the spine and opposite lung curves away from spine, heart moves toward affected side on inspiration, restricted motion of diaphragm on affected side. From the x-ray standpoint only two main forms of atelectasis are recognized, the massive and the localized. Atelectasis is considered massive when the area involved is large enough to require shifting of mediastinal structure or ascent of diaphragm, or both, to compensate for the air absorbed; that is the type which produces the signs enumerated

above. The localized type does not have clear cut x-ray signs and requires close cooperation between members of the medical team to produce accurate diagnoses. Early bronchopneumonia and multiple areas of localized atelectasis cannot be differentiated on x-ray appearances, but if the internist reports toxic signs and laboratory evidence of infection, the roentgenologist must report in terms of bronchopneumonia. If exactly the same appearance is present without clinical evidence of infection, localized or lobular atelectasis is the proper report. Where there are large patches of relatively great density, which undergo rapid changes, they are probably atelectasis. If they persist, with slower changes in their character, they must bring to mind in postoperative cases, such conditions as infarct, embolism, abscess and bronchopneumonia.

Sante has written extensively on massive atelectasis, and has summarized his observations in his monograph on "The Chest" published as Vol. XI in the Annals of Roentgenology. He quotes Bradford's definition of clinical atelectasis, "an unusual condition in which the lung, without the presence of any gross lesion such as bronchial obstruction, pleural effusion, etc., interfering with the free entry of air, becomes airless to a greater or less degree." Sante states that "it seems most logical to suppose from the available evidence that massive atelectatic collapse of the lung results from a simultaneous inhibition of the cough reflex by some toxic or reflex stimulus in association with an impairment of the respiratory function, either immobilization of the respiratory muscle from a defense reaction or paralysis from toxic neuritis. This in turn permits the accumulation of secretions, blocking the bronchi which results in atelectasis."

Jacobaeus, in a very extensive study (Acta Radiologica, 11:547) considers atelectasis in connection with several types of lung disease, including tuberculosis, but gives this latter condition a very minor role in conjunction with atelectasis.

Simultaneously with the presentation of Dr. Gatterdam's study and conclusions, there appeared in the May, 1931, issue of The American Review of Tuberculosis, four articles on atelectasis in pulmonary tuberculosis. Hennell, writing from the New York Post-Graduate Medical School and Hospital, comments on the influence of atelectasis in the development of chronic fibroid tuberculosis of the lungs, especially the unilateral cases, concluding that atelectasis is a defense mechanism leading to healing of the diseased lung. Lloyd writes on chronic pulmonary atelectasis without bronchial obstruction, in which the onset is slow. He gives many illustrations from the Pediatrics Department of the Sea View Hospital, New York. Korol, from U. S. Veterans' Hospital, Omaha, Neb., writes on Atelectasis in Pulmonary Tuberculosis, stating that the lesion is of frequent occurrence in tuberculosis and is the cause of many physical and x-ray signs which are being attributed to the tuberculous lesions. His conclusions are not essentially different from those of Dr. Gatterdam. Glenn, of the Missouri State Sanatorium, wrote on Massive Atelectasis in Pulmonary Tuberculosis and Its Treatment by Artificial Pneumothorax; his seven cases were all in the lower left lobe, and his conclusions are also similar to those of Dr. Gatterdam.

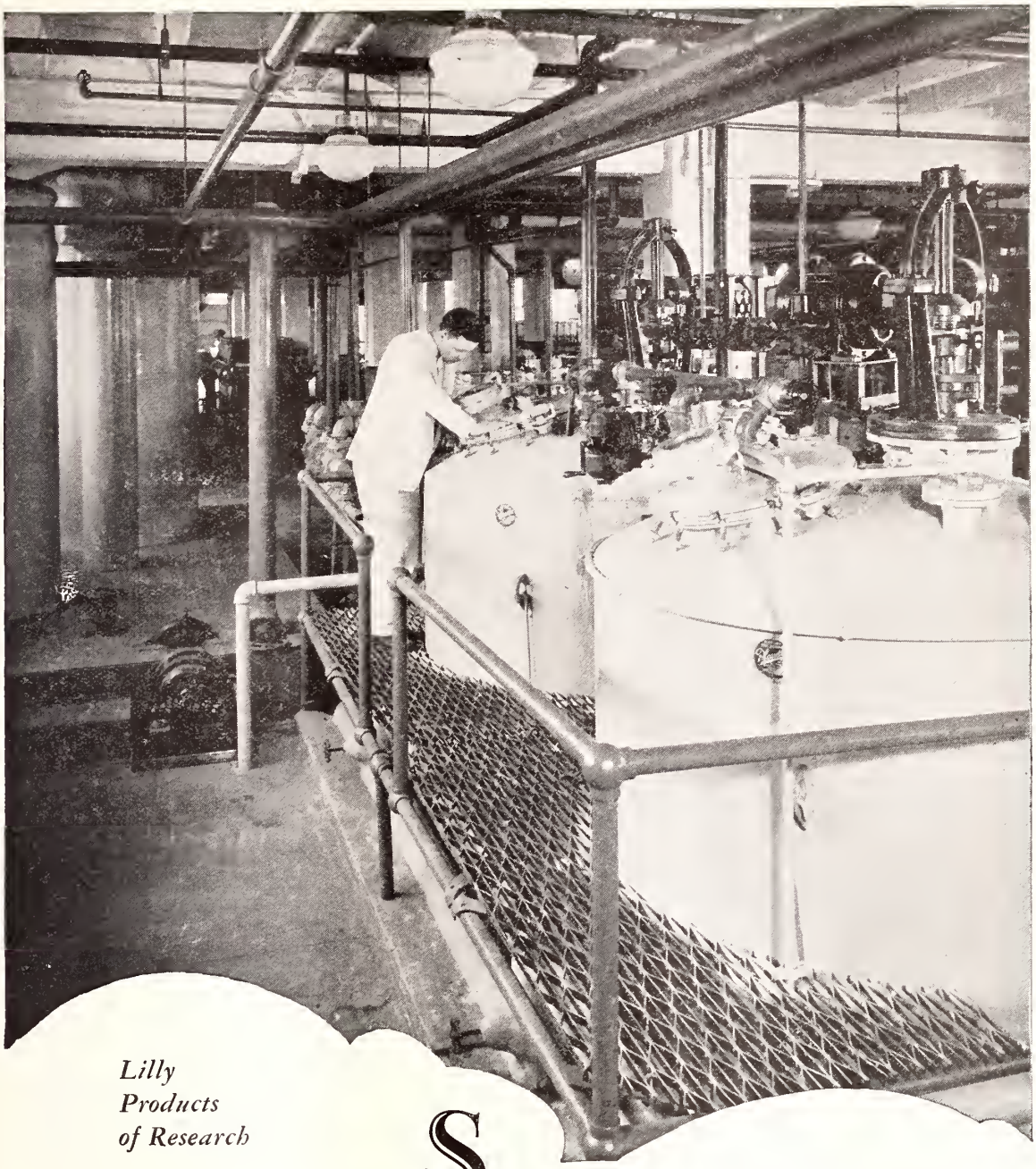
It would seem that the statements and conclusions of Henry Sewell, made ten years ago, are finally bearing fruit in clinical observations. We are entering another of those astonishing phases in medical progress, following a time when a few men, too far-seeing for their generation, drew conclusions and made predictions which have required the lapse of a decade before the main body of clinicians can appreciate their significance or importance. We will now expect atelectasis to take its place in the minds of all clinicians as a major complication in tuberculosis, or rather as a natural and inevitable part of the pathology of that disease.

CASE REPORT

(Continued from page 331)

the opening of the frontal sinus. The entire floor of the frontal, after the technic of Lynch, was removed and all the orbital ethmoid cells broken down. The brain plate was followed posteriorly and the remainder of the posterior ethmoid cells removed. The sphenoid was entered and its anterior wall dissected away. This sphenoid was also filled with a foul smelling pus. The patient was returned to her room in apparently good condition. The first day of her convelascence was rather uneventful with the exception that she complained of considerable frontal headache. About ten o'clock in the evening I saw the patient and she said that she was feeling very much better with the exception that she was having some pain in her left eye. The next morning I was called to the hospital about seven o'clock with the report that the patient had fallen out of bed and was extremely ill. Upon arriving at the hospital I found that Dr. Craig had already given the patient intravenous adrenalin. The patient was in extreme shock and looked as if she might die. The pulse was not perceptible and she was having Chayne-Stokes respiration. I remained with the patient throughout the day, administering supportive medication as her condition warranted and in the meanwhile administering intravenous glucose. After the first 1000 c.c. of glucose the patient made a very decided change for the better. Dr. Hamer saw the patient in consultation about this time and was under the impression that the patient had had a cerebral embolus, but he was unable to rule out the possibility of a cerebral hemorrhage. During the next 24 hours, the patient was apparently very much better, but then began to complain of extreme pain in her chest. Dr. Howell Randolph was asked to go over her chest but was unable to detect any pathology in the chest at that time. The next day I was called to the hospital by the special nurse who informed me over the telephone that the patient was crying bitterly with pain in the abdomen. I suspected that the patient had had a mesenteric embolus, but after about five hours the pain passed away and the patient was very comfortable. All during this time she continued to run a very septic temperature.

At the end of two weeks she was determined to go home and was discharged with a special nurse. After the third day following the removal from the hospital, I was called to the patient's home about 4 o'clock in the morning with a report that the patient had again lapsed into unconsciousness. When I arrived I found her in semi-comatose condition, but unable to speak or swallow. She could be aroused very slightly and apparently understood what was said to her but could not answer. Her condition progressed very rapidly for the worse and she passed into a deep coma. A spinal puncture was done at this time and a very hazy spinal fluid was drawn which revealed a cell count of 30,000. No organisms were found upon culture or smear.



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I again told the sister that she was going to die. During the next 24 hours the spinal puncture was done every six hours but the character of the spinal fluid did not seem to change. Upon visiting the patient the following day, much to my surprise I found her perfectly rational and sitting up in bed. Her convalescence from this time has been uneventful and I see the patient every day in the office preparatory to her returning to Iowa. She is having no headaches and is absolutely free from asthma.

Cerebral emoblus is the only thing that explains to my mind this entire chain of events. Following the embolus an infarction occurred after which the infarcted area necrosed and then ruptured through the cortex. At this time the patient suffered a marked meningeal irritation and the high spinal fluid count was due to the emptying of the necrosed area into the spinal fluid. This was evidently not an infectious thrombosis, as the patient did not develop an infectious meningitis.

I looked up the cases of fatal postoperative embolism since the opening of the Mayo's Clinic in 1889. The total number of deaths in the hospital for the period under consideration, from all causes, was 864, of which the fatalities from embolism were approximately 5 per cent. The mortality from embolism, based on 63,573 operations, is 0.07 per cent, or 1 death in every 1,352 operations. Forty-one of the patients had been from two to thirty-five years subject to some form of severe chronic debilitating disease. Nineteen of the fatalities occurred within the first week after operation. Twenty-one within the second week, 4 in the third week and one each on the twenty-sixth, the thirtieth, and the sixty-fourth days, respectively. In 36 of the cases the embolism was pulmonary, in 10 cerebral, and in one coronary. In 28 of the 41 cases posted, the originating thrombus was found in the field of operation or the femoral vein.

DISCUSSION BY DR. W. A. SCHWARTZ

The value of climate cannot be accurately determined, but that it is of some value must be admitted. In a recent discussion of Dr. Coates of Philadelphia and Dr. Barnhill of Indianapolis both recommended Southern California and Southern Florida, and the reason was that the climate was more uniform than in other parts of the United States. Last winter an article appeared in Hygeia showing that the change in the morning and evening temperature has a stimulating effect which we do not get from a uniform temperature. If there is any value at all in climate I would think that a dry climate would be of benefit.

This patient did not derive much benefit from the climate. Radical surgery was necessary first to remove the large amount of diseased tissue. Surgery on the sinuses has not always given the result that is expected. Some patients have been made worse by surgery, but this does not mean that we should do more surgery, or less surgery. The indications for surgery should be definite and the type of operation carefully selected. The radical removal is not necessary in every thickened mucous membrane, However, when the membrane has become diseased to the extent that it has lost all normal function, complete removal is the only means to effect a permanent cure.

Surgery of the sinuses cannot be compared to surgery of the gall-bladder or tonsils. It is not always possible to remove all the diseased tissue in the sinuses, particularly in the ethmoids. The entire sinus cannot be removed, only diseased tissue as far as possible is removed. Such patients are expected to have colds and will have to withstand a re-infection. For that reason permanent and good ventilation is essential. The frontal sinus would probably not become involved if it were not for disease of the ethmoids first and blocking of the naso-frontal duct. After the frontal sinus be-

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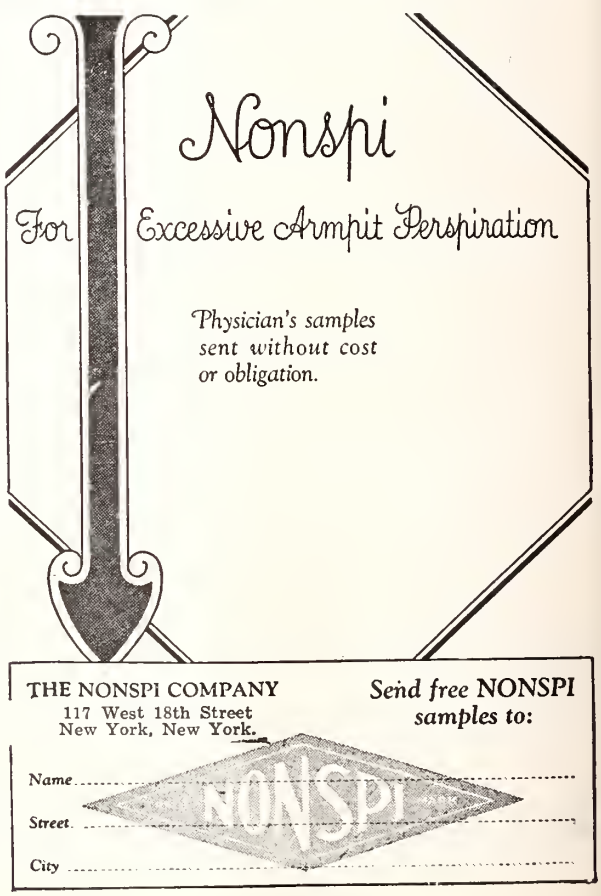
BOVININE AND NEOBOVININE.—The Council on Phermacy and Chemistry reports that Bovinine and Neobovinine are marketed by the Bovinine Company of New York and Chicago. In 1909 the Council reported that while Bovinine was advertised as a "condensed beef juice prepared by a cold process" it was not meat juice but a mixture of alcohol, glycerin, added sodium chloride, and apparently some form of defibrinated blood and that the product was marketed with unwarranted claims. In 1914 the Council reported that the unwarranted claims were for the greater part, still made, and also that the conclusions of the first report were fully warranted by the experimental evidence. The Council has not given consideration to the product since the report in 1914 was issued. Attention having again been called to Bovinine through the advertising for a similar one, "Neobovinine" which is marketed with it, a referee of the Council reported that for Bovinine the situation remained about the same as when the product was last considered. Neobovinine 20 is stated to be "essentially BOVININE (Plain) in which is incorporated the active principle of fresh whole liver." Certainly the combination of Bovinine with a liver extract of undeclared character must be held an unscientific mixture. The case histories are entirely unsatisfactory and report conditions in which it is known that there could not possibly be the results reported. The cases of pernicious anemia are not reportde with sufficient data on which to base an opinion. The Council reaffirmed the rejection of Bovinine and declared Neobovinine unacceptable because the information in regard to its composition is inadequate, because the therapeutic claims advanced for it are unwarrranted, and because the combination of "Bovinine" with a liver extract of undeclared character is unscientific. (Jour. A. M. A., March 14, 1931, p. 860.)

THE CONTROL OF NARCOTIC ADDICTION. —Narcotic addiction is again the focus of an extraordinary amount of attention. The results of investigations concerning the subject are being made public. The taking of narcotics is usually an attempt on the part of someone with little will power to achieve a state of euphoria or artificial happiness. The addict finds withdrawal accompanied by exceedingly unpleasant symptoms and tends to succumb again. Apparently it is possible for an experienced physician to carry an addict through the withdrawal period with relatively little distress. The importance of narcotic preparations should not be under-estimated. Nevertheless there exist in medicine innumerable occasions when one or more of the relatively non-habit-forming sedatives, narcotics, hynotics and analgesics may be employed to substitute for an opium derivative. A series of articles is to be published in an effort to indicate the relatively few instances demanding the administration of opium or cocaine derivatives and the many available substitutes. It is estimated that under twenty-five per cent of narcotic addiction results from prescriptions by physicians in cases in which such prescribing may not have been absolutely necessary. The physician must try to limit his prescribing of narcotics absolutely to those situations where they are indispensable. The medical use of narcotics in the United States appears to surpass that of any other nation. Efforts are being made to limit the prescribing of narcotics to those instances where their use is indispensable. (Jour. A. M. A., March 14, 1931, p. 862.)

MEDICAL ECONOMICS AND MEDICAL BUSINESS.—For some time physicians have been receivnig regularly and complimentary a publication known as "Medical Economics: the Business Magazine of the Medical Profession." The contents of this periodical are devoted largely to the problem of making money out of medical practice. It is apparently little if at all concerned with medical ethics or medical ideals. The vast majority of its space



is devoted to the advertisements of products of many manufacturers whose preparations could not possibly be passed by the Council on Pharmacy and Chemistry. Even those manufacturers who cooperate largely with the Council, find in this alleged medical publication an outlet for the announcements of their products that the Council will not accept. (Jour. A. M. A., April 25, 1931, p. 1404.)

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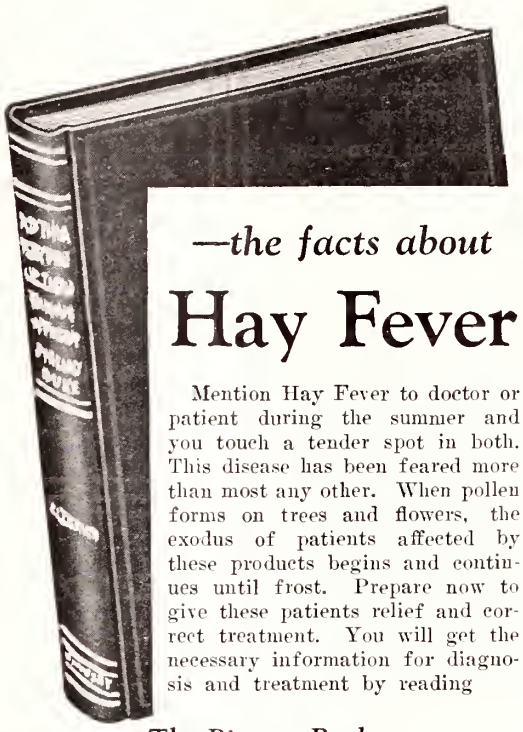

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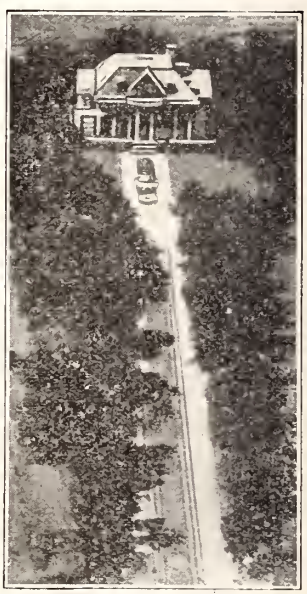

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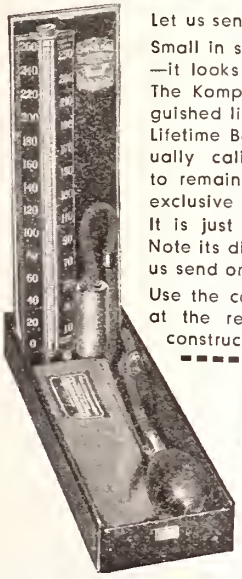

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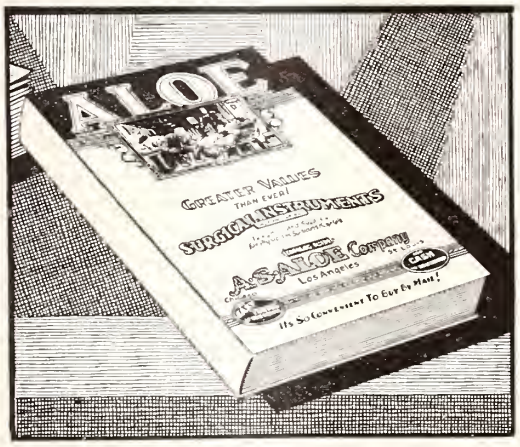

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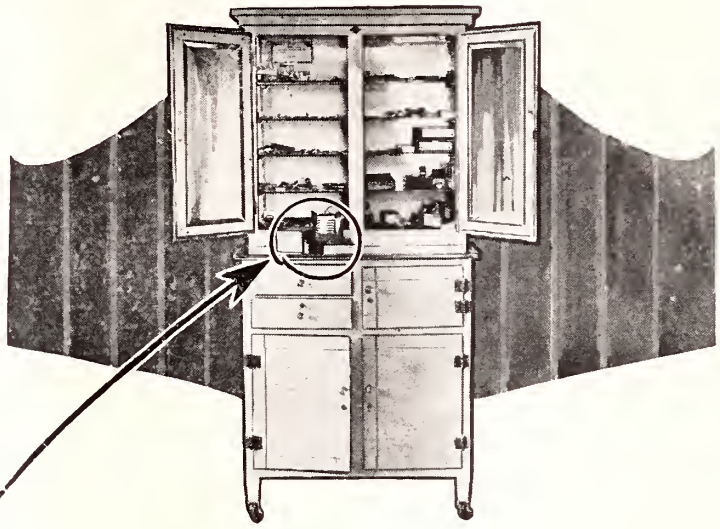

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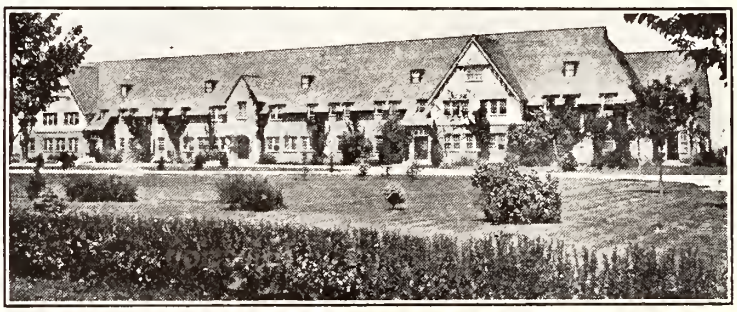

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JELLIED VEGETABLE SALAD
(Six Servings)

	Grams	Prot.	Fat	Carb.	Cal.
1 tablespoon Knox Sparkling Gelatine	7	6	....	...	...
¼ cup cold water	...	...	....	....	....
1⅓ cups hot water	...	....	....	....	....
1 teaspoonful whole mixed spices	...	....	....	....	....
½ teaspoon salt	....	....	....	....	....
⅓ cup vinegar	...	.	...	....	....
½ cup chopped cabbage	50	1	....	3	...
½ cup chopped celery	60	1	....	2	...
¼ cup canned green peas	40	1	....	4	...
¼ cup cooked beets cubed	40	1		3	...
Total		10		12	88
One serving		2		2	15

Soak gelatine in cold water for five minutes. Bring to boil water, salt and spices. Pour on gelatine to dissolve it and add vinegar. Strain and set aside to cool. When jelly is nearly set, stir in the vegetables, pour into mold and chill until firm. Unmold on lettuce leaf or shredded lettuce and serve with mayonnaise or salad dressing. Garnish with sprig of parsley or strip of pimento.

CHOCOLATE PUDDING *(Six Servings)*

1½ tablespoons Knox Sparkling Gelatine	Grams	Prot.	Fat	Carb.	Cal.
	10	9	....	....	....
¼ cup cold water	....	....	....	....	....
2 cups milk	480	14	19	24	....
¾ cup boiling water	....	....	....	....	....
1 square chocolate grated (1 oz.)	30	4	15	9	....
Pinch salt	....	....	....	....	....
Pinch cinnamon	....	....	....	....	....
¼ teaspoon vanilla	....	....	....	....	....
1 gr. saccharin	....	....	....	....	....
Total		27	34	33	546
One serving		4.5	6	5.5	91

Soak gelatine in cold water five minutes. Melt chocolate in boiling water. Add gelatine and stir until dissolved. Add milk, salt, cinnamon, vanilla and saccharin. Stir well and chill. When nearly set, beat until frothy, mold and chill until firm. Serve plain or with thin cream or whipped cream.

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FOREIGN BODIES IN THE AIR AND FOOD PASSAGES

W. E. VANDEVERE, M.D.,
El Paso, Texas.

(Presented before The El Paso County Medical Society, May, 1931.)

This is an important subject because more and more such cases are being recognized. This does not mean that there actually exist more such cases, but the medical man of today is more alert and on the lookout for these cases. In the past, foreign bodies of the bronchi were called pneumonias, lung abscesses and tuberculosis. There is still a tendency along that line. In all unusual or obscure chest conditions a careful history should be combined with an x-ray and thorough physical examination, and, if there still exists any doubt, a bronchoscope should be passed and the bronchial tree inspected.

With foreign bodies in either the air or food passages, initial symptoms are choking, gagging, coughing and wheezing. After that there may be an interval in which there are no symptoms. If the foreign body is lodged in the larynx there may be hoarseness, croupy cough, hemoptysis, dyspnea and cyanosis. Tracheal foreign bodies, according to Jackson, are characterized by an audible slap, palpatory thud and asthmoid wheeze. These signs are caused by the foreign body being flipped up and down the trachea as the patient breathes.

Foreign bodies of the bronchi, after the initial symptoms of cough, choking and wheezing, may have a symptomless interval. Non-obstructive metallic foreign bodies may be free of symptoms for a long time and then cause symptoms of lung abscess or tuberculosis. Vegetal organic foreign bodies, such as beans, peas, watermelon seeds and peanut kernels, rapidly cause severe tracheobronchitis. Obstructive foreign bodies when there is a comp'ete blockage of the invaded lung, cause atelectasis and drowned lung, with a compensatory emphysema of the opposite lung. When the blockage is only partial and there is a valve-like action, allowing air to enter the lung but not to leave, we get an obstructive emphysema of the invaded side. The lung is more transparent, the ribs farther apart, the diaphragm depressed, the heart pushed to the opposite side. According to Jackson, there is a side-to-side movement of the heart with respiration in obstructive emphysema, which is not present in obstructive atelectasis. These x-ray findings are of the greatest value in localizing foreign bodies which do not throw a shadow. X-ray will readily show metallic bodies and others such as teeth, bones, shells and buttons. Glass, because of its lead content, throws a good shadow, as will be seen from one of the cases I will show later. Of physical signs the most important is a diminution of intensity of the breath sounds distal to the foreign body.

The most important symptoms of foreign body in the esophagus are difficult and painful deglutition, a subjective sensation of a foreign body, and an increase in the action of the salivary glands. X-ray and having the patient swallow a barium mixture will locate most obstructions, whether opaque or non-opaque. Many times something is swallowed which traumatizes the tissues in passage and produces a sensation as if something has lodged. In such cases the patient is usually feeling much better in twenty-four hours.

Most objects, even open safety-pins and needles, will pass on through the bowels without harm once they have reached the stomach. Such objects should be watched daily through the fluoroscope and, should they lodge at some point in the intestine for

as long as three days, they should be removed through an abdominal incision, because of the danger of perforation.

No attempt should ever be made to remove a foreign body of the esophagus or bronchus except under direct vision through an esophagoscope or bronchoscope. Jackson states that no other method is worthy of a moment's consideration and that many lives have been needlessly sacrificed by blind instrumentation with the obsolete probang and rubber tubing, and so forth, whereby an effort is made to dislodge the obstructing body into the stomach. Such procedure often cause perforation of the esophagus and mediastinitis, which means death within twelve hours.

A number of cases will now be presented with some interesting phases of each.

CASE REPORTS

Case I. J. S., an American boy, age 5, with five-cent piece in esophagus; duration 24 hours. Removed by bronchoscope, Feb. 11, 1925. This boy's symptoms were a bit suggestive of foreign body of the air passages because of severe cough and dyspnea. Both symptoms were caused by a relatively large foreign body in the esophagus pressing forward on the trachea sufficiently to produce the respiratory distress. (Fig. 1.)

Case II. A. M., American boy, age 8. Tack in right bronchus; duration 6 years. Symptoms of lung abscess and tuberculosis. Tack removed by bronchoscope, July 8, 1925.

This was one of the most interesting cases I have had. The boy had been in poor health since the age of two, and at the age of five was brought from his home in Oklahoma to New Mexico because it was thought that he had tuberculosis. The x-ray picture (Fig. 2) shows the tack in the left bronchus and the left lung is quite cloudy. Two weeks after this picture was made the tack was removed from the right bronchus, having shifted from the left to the right during that interval. The tack, no doubt, had sojourned in the left bronchus during most of the 6 years and had produced the inflammatory changes. This boy has made a complete recovery.

Case III. C. R., Mexican girl, age 11. Mexican five-cent piece in esophagus 3 weeks. Difficulty in swallowing solids but no trouble with liquids. Removed by esophagoscope, July 11, 1925.

This girl was from Juarez and was evidently waiting for a miracle to happen and the coin to be dislodged. The miracle did not happen and she finally came to El Paso and lost her five-cent piece through tthe esophagoscope.

Case IV. E. B. S., 8 months old American girl. Open safety-pin in esophagus; duration 24 hours. Slight pain on taking food. Pin removed by esophagoscope, March 8, 1926. Fortunately this pin was pointed the right way (Fig. 3) which made removal easy. As a rule the point is up and in such cases we have a number of instruments as well as methods whereby they can be removed. Great care must be taken that the points of sharp bodies do not perforate the thin wall of the esophagus.

Case V. A. J., Mexican boy, 1 year old. Piece of apple core in right bronchus; duration 24 hours. Removed by bronchoscope, April 3, 1926. Diagnosis was made by the history and absence of breath sounds over right lung. Breathing was normal after piece of apple was removed and the severe tracheobronchitis set up by the vegetal foreign body cleared up in 3 or 4 days.

Case VI. F. E., one-year-old Mexican girl. Frijole bean in trachea; duration 12 hours. This patient had frequent strangling spells due to the lodging of the bean against the under side of the larynx. The palpatory thud and audible slap were present in this case. Moisture had caused such swelling of the bean that it was necessary to remove it prece by piece, July 2, 1926.

Case VII. J. L., Mexican boy, age 3. Walnut kernel in right bronchus; duration 12 hours. Complete obstruction of right bronchus. Diagnosis made by history and absence of breath sounds over right chest. Kernel removed through bronchoscope. Uneventful recovery. June 30, 1927.

Fig. 1

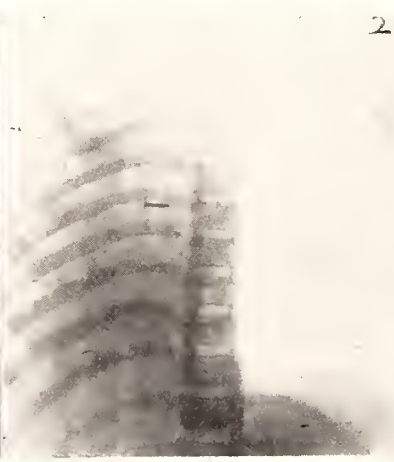

Fig. 2

Fig. 3

Fig. 1 Case I. Five-cent piece in esophagus. Coins in the esophagus present the flat surfaces anteriorly and posteriorly, while similar bodies in the larynx present the edges in this plane.

Fig. 2. Case II. Tack in the left bronchus; two weeks after this film was made the tack was removed from the right bronchus, having shifted in the interim.

Fig. 3. Case IV. Open safety pin in the esophagus.

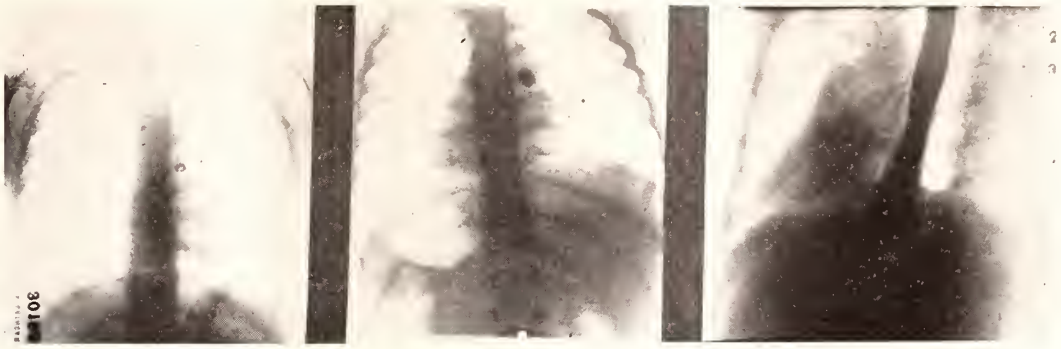

Fig. 4 Fig. 5 Fig. 6

Fig. 4. Case X. Thumb tack in left bronchus.
Fig. 5. Case XIV. Glass bead in right bronchus.
Fig. 6. Case XIX. Obstruction of esophagus by piece of beefsteak.

Case VIII. L. L., Mexican girl, age 15 months. Pinto bean in right bronchus; duration 36 hours. It was necessary to remove this bean piece by piece because of swelling of the bean from the moisture in the bronchus. July 28, 1927.

Case IX. Mrs. H. H., age 40. Piece of beefsteak lodged in upper end of esophagus; duration 6 hours. This woman had had similar experiences on two previous occasions, but had been able to dislodge the piece of meat. Fluoroscope, with the patient taking a little barium by mouth, showed the position of the obstruction. There was a distended aortic arch, which probably was the cause of the stenosis of the esophagus. A piece of steak was removed through the esophagoscope, September 17, 1927.

Case X. F. G., Mexican boy, age 11. Thumb tack in left bronchus; duration 6 hours. No symptoms except slight pain under sternum. Tack removed by bronchoscope. This boy was playing at school, had a thumb tack in his mouth and inhaled it. After the initial coughing spell, he went into the symptomless period and, except for very slight pain in the chest, we probably would not have been led to get an x-ray picture, (Fig. 4) which showed us the tack.

Case XI. M. V., Jr.; Mexican boy, age 5. Penny in esophagus; duration 6 hours. Unable to swallow food. Penny removed by esophagoscope, March 19, 1928. Uneventful recovery.

Case XII. J. M., American boy, age 3. Five-cent piece in esophagus; duration 4 hours. Removed by esophagoscope, May 10, 1928. Some respiratory obstruction due to relative large size of foreign body in esophagus causing pressure anteriorly on trachea.

Case XIII. Mrs. C. G., Mexican woman, 75 years of age. Chicken bone in esophagus; duration 24 hours. Much pain, increase of saliva and inability to swallow foods. This foreign body was a very jagged and sharp-edged piece of breast-bone of chicken. Removed through esophagoscope with uneventful recovery, June 4, 1929.

Case XIV. F. C., American girl, age 3. Glass bead in right bronchus; duration 8 hours. Slight wheezy cough. Bead removed by bronchoscope, July 5, 1929. This case was interesting because it demonstrated how plainly glass, because of its lead content, will show in an x-ray picture (Fig. 5). Of interest also was the fact that the bronchus was not completely blocked by this rather large foreign body, probably because air was able to pass into the lung through the hole in the center of the bead.

Case XV. M. B., American boy, age 3. Five-cent piece in esophagus; duration 24 hours. No difficulty on swallowing liquids. Foreign body removed by esophagoscope, August 15, 1929.

Case XVI. S. R., Mexican girl, 2½ years of age. Watermelon seed in right bronchus; duration 48 hours. Removed by bronchoscope. This case gave the typical history of bronchial foreign body. An x-ray was made which did not localize the body because the seed was opaque to the x-ray. The parents were told to go home and if the child didn't get better to come back. I first saw the child 48 hours after it had aspirated the seed and by that time a severe tracheobronchitis had set up. The foreign body was removed and the child completely recovered after a rather stormy period of a few days.

This case teaches that, with a clear-cut history and symptoms of a foreign body in a bronchus, we should not hesitate to pass a bronchoscope. We can not expect an non-opaque body to show in an x-ray, nor can we necessarily expect a body of that shape to cause either an atelectasis from complete blockage or an obstructive emphysema from a partial blockage. August 19, 1929.

Case XVII. J. M. H., American girl, age 3. Penny in esophagus; duration 24 hours. Removed by esophagoscope. No unusual features.

Case XVIII. G. B. Y., Indian girl, age 1½ years. Grain of corn in trachea; duration 3 days. Severe tracheobronchitis. Foreign body removed through bronchoscope, January 18, 1930. This baby was brought from Shiprock, New Mexico, a distance of 800 miles. All of the signs of tracheal foreign body were present: the audible slap, palpatory thud and asthmoid wheeze. The baby had a rather stormy convalescence but in three days was so completely recovered that she was able to leave the hospital.

Case XIX. H. M., American man, age 35. Piece of beefsteak lodged in lower end of esophagus; duration 24 hours. Removed by esophagoscope, February 16, 1930. This man was eating dinner in Juarez and had probably forgotten how large a bite he had taken and was attempting to swallow. There was a complete blockage, as shown by the x-ray picture (Fig 6) after the patient had filled his esophagus with a barium mixture.

Case XX. Z. B. K., American boy, age 1½ years. Five-cent piece in esophagus; duration 24 hours.

Removed by esophagoscope. There was nothing unusual about this case. It is well to remember that flat objects lodged in the esophagus present the flat sides anteriorly-posteriorly, while if such an object is lodged in the larynx or trachea we expect to find the edge pointing anteriorly-posteriorly and the flat sides from side to side.

Case XXI. A. V., Mexican boy, 17 years of age. American halfdollar lodged in the esophagus. Removed by esophagoscope. This was a rather large foreign body for the esophagus and produced considerable pain. The boy was able to swallow liquids with difficulty.

Case XXII. A. B., American boy, age 2. Bean in right bronchus; duration 48 hours. Symptoms simulating pneumonia. Bean removed piece by piece. Patient died 24 hours later.

This patient was seen by me in consultation two days after aspiration of the bean. The history pointed to a foreign body and x-ray showed an obstruction atelectasis of right lung with heart moved over to that side. Breath sounds were feeble over the right lung. Some of the consultants had thought that the baby had pneumonia. Bronchoscopy was advised but before that could be done the baby dislodged the bean from the bronchus and it lodged in the larynx and came very near producing death before it was dislodged down into the trachea. The bean was quite large, due to swelling from moisture, and had to be removed piece by piece. There was much laryngeal edema and a tracheotomy was done. However, the child died the following day. Autopsy showed a severe laryngotracheobronchitis and hemorrhages throughout the paryenchyma of the lungs, characteristic of strangulation.

Fig. 7.

Fig. 7. Photographs of foreign bodies removed from cases described in this paper.

The last illustration (Fig. 7) shows a collection of foreign bodies reported in this paper, with the exception of the two pieces of steak and the apple core, which I was unable to preserve.

All of the cases reported made a complete recovery except the last one.

General anesthesia was used in all cases except the last one and it was not necessary then because the patient was unconscious from strangulation.

Local or no anesthetic would probably be preferable where one has three or four assistants making up a well-trained team, but where that is not available I believe a general anesthetic is the best procedure.

BRONCHOSCOPIC DIAGNOSIS AND TREATMENT, INCLUDING FOREIGN BODIES

CHARLES W. BROWN, M.D.,
San Diego, Calif.

(Read before the Fortieth Annual Meeting of the Arizona State Medical Association, held at Nogales, May 7-9, 1931.)

In a mixed audience of specialists, in every branch of Medicine, and general practitioners, I am attempting to give to you in this paper my own experiences and those of others to stimulate more and better peroral endoscopy. The general practitioner and internist would save many satisfied patients for himself and much grief and money for his patient were he to have peroral endoscopic examinations following x-rays on his obscure cases of the respiratory tract and esophagus. Many a life has been lost, or nearly lost, by waiting too long for a laryngeal examination both indirect and direct.

Case 1. Mrs. C., age 24, was admitted to San Diego County General Hospital with extreme dyspnea, seven months pregnant, and laryngoscopic examination showed a large gumma of right arytenoid. A tracheotomy was necessary before laryngoscopic examination could be made. She had a four plus Wassermann. She was placed on antiluetic treatment and, in few days, could breathe through larynx normally when tracheotomy tube was removed. In two months she was readmitted to the hospital and gave birth to an apparently normal baby.

Case 2. Mr. J. B., age 75, with four plus Wassermann, had been given large doses of iodides and was a patient in the County Hospital. One night he began to have laryngeal dyspnea and by the next morning was very cyanotic. A tracheotomy had to be performed before a laryngoscopy could be made, which revealed edema of entire larynx. Iodides were stopped and in a few days the tracheotomy tube was removed.

Case 3. W. D., age 65, admitted in extreme dyspnea. Laryngoscopy was attempted but we had to do a tracheotomy before we were able to do a laryngoscopy which showed an edema of the entire larynx. In a few days this man was free from distress, with all edema gone, and was discharged. His only history was that he was sensitive to fish foods and this time caused edema of the larynx.

Case 4. Mrs. D., age 60, gave history of hoarseness. Her tonsils were removed without a laryngoscopic examination either direct or indirect. I saw her four months later in consultation when at the Mercy Hospital. Did a biopsy by direct laryngoscopy and found a large mass nearly filling the larynx, and the biopsy report was squamous cell carcinoma. Advised laryngectomy but this was refused and she died a few months later of cachexia and suffocation, not even permitting a tracheotomy to be performed.

Case 5. F. S., age 52. Hoarseness for many months; treated for lues; repeated negative blood tests for lues. Admitted to San Diego County General Hospital, December 8, 1928, with only symptom that of hoarseness. A small tumor mass was noticed, on indirect and direct laryngoscopy, on the right vocal cord. Biopsy report was that of chronic inflammation. I continued to observe the tumor

grow and on third biopsy got a report of squamous cell carcinoma and did a laryngectomy, May 1, 1929. Two years later, the man is well, and in all probability will continue well, and is working every day, (Fig. 1).

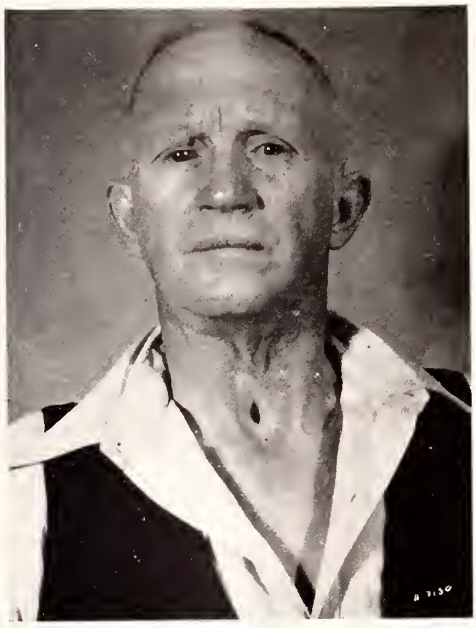

Fig. 1

Fig. 1. Case 5. Photograph of patient, F. S., two years after laryngectomy for squamous cell carcinoma.

Case 6. J. G., age 2, had definite hoarseness and repeated attacks of difficult respiration and was given antitoxin for diphtheria twice and had tracheotomy twice, before a laryngoscopic examination was made after a third emergency tracheotomy when many papillomas were removed from the larynx. She has now had seven operations for removal of papillomas (Fig 2) and how many there will be in future no one knows. She has had mumps and several colds and is now in good health except for the papillomas.

Fig. 2

Fig. 2. Case 6. Papillomas removed from the larynx of J. G., age 2, at the seven operations.

Case 7. L. W., age 44, was brought to Mercy Hospital in police ambulance at 3 p. m., April 19, 1931, when a tracheotomy was immediately performed by the police surgeon to save his life, on account of extreme dyspnea. On that same morning was feeling well and worked in yard; about 12 o'clock noticed throat getting a little sore. Had his dinner and throat continued to swell, when suddenly seemed to be choked; then, in excitement, called police ambulance. Never history of edema before, occasional sore throat.

Examination: Patient with small tracheotomy tube just inserted by Police Surgeon Brust. Patient very nervous with extreme anxious look on his face, no cyanosis. No obstruction to breathing through tracheotomy tube except small size of tube. Right tonsil, negative; left tonsil, enlarged, red, pus in crypts. Marked pyorrhea. Indirect examination: marked edema of epiglottis blocking view of larynx proper. Direct laryngoscopic examination revealed very edematous epiglottis and arytenoids and aryepiglottic folds. multiple incisions in edematous areas were made with laryngeal knfe and a larger tracheotomy wound made to accommodate larger tracheotomy tube.

In cardiospasm a diagnosis can almost be made by the cone shape of the dilatation of the esophagus when seen with the fluoroscope and x-ray. Yet, all of these cases should have an esophagoscopic examination regardless of how definite the history, for there is always a possibility of an ulcer of the esophagus that could be cauterized and with the esophagus dilated a few times the individual might be restored to health and much saved in time of treatment, misery, and money.

The following three cases are very interesting from this point.

Case 8. Mrs. H., age 40, May 19, 1928. Seven or eight years' difficulty in swallowing, cannot swallow solid foods. Came on gradually, noticed the food regurgitated into mouth. Cannot swallow cold liquids. Bread with cottage cheese comes up in bolus. No history of caustic or acid by mouth. Married for sixteen years and always quarreled, separated six months ago and now can't earn livelihood. No change of symptoms since separation. Esophagoscopy: Very large esophagus from cricopharyngeus to first stenosis or apparent spasm, 33 cm. from incisor teeth, then real spasm at 41 cm., passed bougies for dilatation. May 24, 1928, esophagoscopic bouginage. Stenosis apparently 6 cm. long. May 18, 1928, after ingestion of barium, shows a delay in the passage of the barium at the distal end of the esophagus, where it narrows down to a fine stream just as it enters the stomach. The esophagus was considerably dilated. The location of this delay and the appearance of the barium shadow is strongly suggestive of a long-standing cardiospasm rather than a stricture from organic disease. (J. O. Kellogg.) Repeated dilatations with Sippy bougies on string. Then lost track of patient for three years, during which time she had no treatment. X-ray showed condition about same as formerly and esophagoscopic examination April 7, 1931, showed condition as follows: large esophagus filled with sour, watery solution, which was removed with stomach tube. Large esophagoscope passed spasm without resistance.

Case 9. Mr. W., age 35, had one of the largest dilatations of the esophagus that I have ever seen. He is a truck driver, driving all night every other night, and has been for years. His married life has been an unhappy one and he has worried a great deal. Esophagoscopy showed an enormously dilated esophagus filled with thick foul-smelling liquid; no malignancy present but a spasm of the cardiac end of the esophagus, which is easily dilated. He has now been under observation for one year and is feeling very much better and gaining in weight, following his dilatations.

Case 10. Mr. M., age 21, a university student with a history of difficulty in swallowing for two years. Has had an eczema since infancy and no doubt this allergic disturbance has been a factor in his cardiospasm. His x-ray showed a cone-shaped enlarged esophagus. After two dilatations he showed a marked improvement, then, being a wanderer, went on his way east and was lost sight of. He has had to work his way through high school and university and is of apparently quiet makeup but nearly all these cases have a nervous element to enter into the cause of their condition.

Many a carcinoma and stricture or stenosis is diagnosed cardiospasm, when a true condition would be revealed had there been an early esophagoscopic examination.

In carcinomas of the esophagus it is not only necessary to do a fluoroscopic and x-ray examination, but an esophagoscopy should be performed. Jackson states that the mortality in carcinoma of the esophagus is 100 per cent. If a person gets well after a diagnosis of carcinoma has been made, it is a mistake in diagnosis, for the patient had a cardiospasm, stricture of the esophagus, or other benign obstruction of the esophagus.

The following cases are interesting carcinoma cases.

Case 11. M. M., age 84, first admitted to the San Diego County General Hospital, December 10, 1929. On December 11, esophagoscopy with removal of section for biopsy. Findings: lumen of esophagus blocked with granulation just below cricoid narrowing. Dec. 20, 1929, tissue report was squamous celled epithelioma. (H. A. Thompson.)

Admitted to the San Diego County General Hospital second time, April 2, 1930. April 4, x-ray: delay of barium-soaked bread at level of sixth cervical vertebra, film taken five minutes after ingestion, showed esophagus outlined with barium. April 8, pharyngoscopy; growth is large in hypopharynx and distinctly large across post-pharyngeal wall up to near the level of top of arytenoids. Pyriform fossae filled with fetid solution. April 24, dilatation of carcinoma growth in upper one-third of esophagus and hypopharynx. April 24, barium shows notable obstruction at the level of the thyroid; fluoroscopy shows difficulty in swallowing, a delay in passage of barium-filled gelatine capsules, at a point 2.5 inches below epiglottis. May 13, patient expired. Autopsy: Upper half of esophagus revealed an irregular cauliflower-surfaced growth about 2½ inches in length, producing an almost complete obstruction of the organ. There were a few enlarged lymph glands in the neck. Right lung involved. Left lung consolidated from pneumonia or hypostasis.

Tissue examination from esophagus is basal celled epithelioma. Lung involvement. Lymph gland. Metastatic Carcinoma.

Case 12. J. L., age 65, November 14, 1927, gastrostomy at San Diego County General Hospital. January 27, 1927, thought had cold, loss of voice, only makes sounds. Sore throat started and persisted. First difficulty in swallowing, April, 1927. Increased since progressively. First not able to swallow meats and crusts. Two weeks ago could swallow only liquids. Lost forty pounds since January. December 7, 1927, pharyngoscopic examination, direct method, showed granulation masses on post wall and lateral wall of hypopharynx. Unable to pass esophagoscope through cricoid narrowing, passed No. 8—12 F. bougie three inches into mass but could not pass further. Diagnosis, carcinoma of hypopharynx and esophagus. Death December 9, 1927.

Case 13. Mrs. A. R., age 53, December 13, 1929, referred by Dr. Sundberg, Rees-Stealy Clinic. For three years had trouble with swallowing, and weakness and gradual loss of weight. Was told her condition was nervousness and only three weeks ago was examined by a doctor and was told again her condition was nervousness. Examination: Large cauliflower carcinoma mass in hypopharynx and beginning of esophagus with stricture to point of being unable to pass a bougie larger than No. 9. January 10, 1930, passed large bougie on string. Patient left San Diego latter part of January, 1930. Patient died, July, 1930.

Case 14. R. P., age 72, April 17, 1931. Unable to eat or swallow for twenty-four hours. X-ray: barium at level of clavicle in esophagus. Pain in top of head started six weeks ago when swallowing or coughing. First noticed obstruction to eating ordinary foods one week ago. Has to spit out saliva. Lost three to four pounds in last month. Weight 217 to 220 for thirty years. Examination: About one inch below cricoid, narrowing, almost complete obstruction, of esophagus. Very hard masses, larger mass appearing from right, posterior portion. Unable to pass anything smaller than No. 11 F. bougie on account of firmness of tumor mass. Able to swallow liquids after bouginage.

Case 15. P., age 60, for many months treated for ulcer of stomach by prominent gastro-enterologist. Began to have rapid loss of weight and went to Paradise Valley Sanitarium, where I was called to do an esophagoscopic examination after an obstruction was noticed in fluoroscopic examination.

The esophagoscopic examination shows large amount of foul-smelling dark-brown liquid in pharynx, trickling over into larynx, causing continuous cough. There was a cauliflower mass in upper third of esophagus that biopsy showed carcinoma. A gastrostomy was done and, in twenty-four hours after operation, patient died from a perforation into the trachea. A bronchoscopy was not done.

The following cases of carcinoma of the esophagus are lower down.

Case 16. C. W., age 71, April 1, 1929, choking sensation, vomiting, pain in epigastrium for two months, unable to take solid foods and stimulates emesis. Patient never vomits food, always a mucous, saliva-like fluid. Visited a doctor and was told he had acidosis and was put on orange juice diet. This offered no relief. Soda mint offers considerable immediate relief. Lost twenty-five pounds in past six months. April 9, esophagoscopic examination. Large mass on right side of esophagus, 43 cm. from incisors. April 23, biopsy taken, growth larger. Report squamous cell epithelioma. April 10, dilated esophagus to No. 28 F. Sippy dilators. X-ray of chest: no evidence of metastatic malignancy. April 6, barium delayed two inches above cardia, passed through in fine stream. The upper margin of the constricted area of the esophagus was almost perpendicular to the line of the esophagus giving the characteristic "edge effect," seen in malignant infiltration of the walls. The esophagus above the constriction was not dilated. Examination discloses an annular filling defect of the distal two inches of esophagus, consistent with a malignant involvement. (J. Kellogg.) February, 1931, Dr. Barclay phoned in that Mr. W. was being

examined by him for pension and that his condition was indeed very poor. I was surprised for I thought the man dead months before.

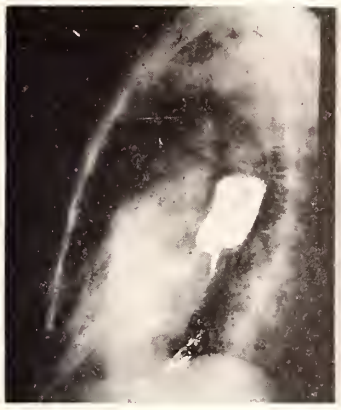

Fig. 3A

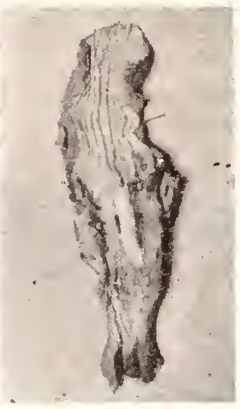

Fig. 3B

Fig. 3a. Case 17. Lateral roentgenogram of barium defect in esophagus, showing the "edge effect" of malignancy. Film made six hours after barium meal.

Fig. 3b. Autopsy specimen from esophagus of Case 17, showing almost complete obstruction of lumen.

Case 17. E. C., 74, February 9, 1931. Nausea and vomiting. Loss of weight, thirty pounds. Obstinate constipation. Onset of nausea one year ago, becoming worse all the time. Now patient can eat practically nothing but liquids. Bowels will not move without enema every day, no blood in stools. Patient emaciated. Palpable non-painful mass in epigastrium. Masses in both lower quadrants, which seem to be fecal. Esophagoscopic examination February 28, 1931, biopsy, three sections of mass. Growth in esophagus practically closing greater portion of lower third of esophagus. Cauliflower growth with dilatation of esophagus lumen through growth from No. 7 to No. 22.

X-ray: The patient was first seen at the six-hour period at which time there was barium in the esophagus, stomach, and ileum. The barium in esophagus presented a shadow 6 cm. long by 3.5 cm. wide. Its lower border was five inches above the cardia. This border narrowed sharply, giving the characteristic "edge effect" of malignancy (Fig. 3a. A line of barium column extended downward from the above shadow a distance of one inch. At 27-hour period apparent increase in amount of barium in esophagus. Shadow now measures 7 by 3 cm. due to increase in fluids. Conclusion: Findings are consistent with a malignancy of the esophagus extending downward from a point five inches above the cardia. The length of the downward extension has not been determined from the examination but it is at least one inch in length. (Kellogg.)

Autopsy report: February 29, 1931. Fairly well-nourished female, apparently 74 years of age. Very pale. An obstruction half the size of a lemon was found in middle third of esophagus. The growth by direct extension involved the lower right main bronchus. No perforation was found. Cut section of growth (Fig. 3b) showed almost complete obstruction of lumen of esophagus. No metastasis to mediastinal glands.

Case 18. C. P. S., 71 years of age, baker. May 3, 1930, admitted to the San Diego County General Hospital. History: difficulty with swallowing; vomiting, loss of weight (fifty pounds) and strength. About one year ago gradually noticed certain foods would not agree with patient. A drink of real cold water caused nausea. Coarse food, such as apples and cabbages, would not agree with patient. After eating would complain of gas. Vomiting began two weeks before admittance. Bowels normal. May 3, 1930, x-ray. The patient was first seen at the six-hour period, when a barium residue was seen in the upper half of esophagus. Another barium spot about the size of a quarter about midway down the esophagus but about two inches to the right of it, and a small filling in the esophagus just above the cardia. The patient was given a small amount of barium to swallow and there was marked delay in the esophagus at the level of the sixth dorsal vertebra. There was an apparent connection between the linear esophageal shadow and the above spot, indicating that it was probably a diverticulum. A film taken at the twenty-four hour period still shows the diverticulum of the esophagus, described above, to be filled with barium. There is a marked increase in the density of the right hilus, extending fan-shaped into the lower half of the right lung. Suggestive of a metastatic malignant process. (Kellogg.)

May 15, 1930. Esophagoscopy. Ten minutes, time of examination. Large esophagus lumen above carcinomatous ball mass one-half inch across from anterior wall then immediately below from post wall ulcerated mass. Diagnosis: carcinoma of distal third of esophagus.

Patient expired under ether anesthetic when undergoing a gastrostomy. Was a very poor risk. May 27, 1930, tissue from esophagus shows a small piece of acute inflammation tissue. Autopsy, May 21, 1930. Esophagus in its lower third shows annular carcinoma about six inches in length, friable carcinomatous tissue encircling the entire esophagus, marked by dense adhesions to trachea and surrounding tissue. Lungs: marked apical involvement on right side with thickening and adhesions of pleura in both apical regions, some marginal emphysema. Rest of body not abnormal, no metastasis. Tissue examination of esophagus, lung, and so forth. Lung areas of carcinoma, many areas of acute inflammation, marked congestion, alveolar thickening. Esophagus, squamous cell epithelioma. Liver and spleen negative for carcinoma.

Case 19. F. G., 81, April 16, 1930, sent in to San Diego County General Hospital by Dr. Crabtree as a probable carcinoma of lower end of esophagus. Seen in admitting room by Dr. Brown, who requests admission for x-ray study and esophagoscopy. History; Pain in stomach which is worse past three weeks. Food stays heavily on stomach. Can't force much. Appetite good, has been vomiting, off and on, for past three weeks. Chest examination: Moist rales in bases both lungs. Heart sound scarcely heard. Loss of weight thirty pounds. April 19, x-ray report: Esophagoscopic examination after ingestion of barium showed delay at the lower end about two inches above the cardia, with an annular filling defect, the upper margin of which showed a characteristic "edge effect" of malignancy. The annular defect extended over the distal two inches of esophagus. Examination discloses an annular defect of the terminal portion of the esophagus consistent with malignancy. There was marked delay in the passage of the barium. (Kellogg, No. 10,224.)

April 24. Esophagoscopy, fifteen minutes' duration. Findings: Folds and tumor mass at distal end of esophagus. No ulceration. Biopsy and dilatation of esophagus. Laboratory report on biopsy,

hyperplasia of mucous membrane; no evidence of malignancy. April 25, barium passed through the involved area with not as much delay. May 13. Refused further dilatation.

June 5, 1930. Since esophagoscopy patient states that he has felt much relieved, which is evidently due to the dilatation of this area, and he is now taking food much more comfortably, he wishes to leave the hospital and return home. Patient will return in four weeks for further observation. June 7, discharged from hospital. Carcinoma of the esophagus with obstruction, improved. April 26, 1931, returned to the hospital in extreme emaciation.

Case 20. F. N., age 58. X-ray, moderate delay of passage of barium through distal end of esophagus with a constriction simulating a neoplastic defect. Esophagus above was slightly enlarged. October 22, 1930, esophagoscopy. Large tumor mass with some erosion and redness on posterior wall of esophagus at cardiac end of esophagus. Bipsy, and passed No. 13, No. 16, and No. 17 bougies. Tissue report: Adeno-carcinoma. (Dr. H. S. Summerlin.) November 25, 1930, signed release and lost track of patient.

Case 21. F. H., 74 years of age. Difficulty in swallowing. Vomiting food. Symptoms began three months ago and have been increasing gradually but constantly since. Loss of weight, forty pounds in last year. Most of it in past few weeks. June 30, 1930, esophagoscopic examination with removal of section for biopsy. Findings: small ulceration and granulations distal end of esophagus. Time, thirty minutes. Laboratory report: inflammation, not malignant. (H. A. T.) July 2, x-ray; fluoroscopic examination, barium ingestion shows marked delay at the cardia without evidence of filling defect in the esophagus. Findings are similar to those previously reported. (Dr. Kellogg.) July 3, esophagoscopy. Removal of pieces of meat and corn from esophagus. Then dilatation and section for biopsy. Findings: esophagus obstruction, with meat and corn above obstruction. July 3, biopsy. Chronic inflammation, no evidence of malignancy.

Readmitted, August 23, 1930. Diet for two months, milk and water. Vomits incessantly. Marked emaciation. September 8, gastrostomy for alimentation. September 19, patient died. Autopsy findings: Patient old, emaciated. Lungs, hypostatic congestion with infarct in left lung. At junction of esophagus and stomach a mass the size of an egg surrounded the esophagus. Mass was hard and fungating, producing complete obstruction.

NEW GROWTHS IN LUNG

Case 22. C. E. B., 42, November 12, 1929. Complaining of cough, expectoration and inability to get rid of cold six weeks ago. Four years ago, influenza and never well since. Night sweats following flu six weeks ago. Coughs great deal and expectorates yellow material. Gain in weight at present. No pain in chest. X-ray, shows mass at base right lung posterior.

Bronchoscopic examination: Right bronchi are large and all carinae are rounded and red. Large fibromatous mass in third or fourth bifurcation. Biopsy removed and examined. Report: inflammatory tissue. Later report from Mayor clinic on slide showed squamous cell epithelioma, type two.

Chest examination by Dr. Sundberg of Rees-Stealy Clinic, essentially negative, except little dullness in right lower base. Paravertebral bronchus.

Dr. Vinson of Mayo Clinic reports a case of treatment of primary carcinoma of the bronchus by radium and roentgen ray. "From January, 1925, to December 22, 1930, the diagnosis of primary carcinoma of the bronchus was made in seventy-one cases from microscopic examination of tissue which was removed at bronchoscopic examination. Questionnaires were recently sent to this group of seventy-one patients, and the answers show that fifty-three of them are dead. Practically all patients have been advised to have deep roentgen treatment here or at home and many of them have followed this advice. Ten of the patients who have had radiotherapy have shown varying degrees of improvement. Four of these have been observed for periods of from four to seven months, one for eleven months, three for sixteen months, one for three years and one for three and a half years. Six of the patients are failing rapidly and two have not yet replied to the questionnaire."

The above mentioned patient went there for examination in September, 1927. In March of the same year, he had had an attack of pneumonia which was followed by cough, purulent expectoration, fever and loss of 30 pounds in weight.

Roentgenoscopic examination of the thorax revealed marked infiltration in the base of the right lung which was thought to be due to pulmonary abscess.

General examination disclosed absence of breath sounds over this area of infiltration. Bronschoscopic examination disclosed an ulcerative lesion in the right bronchus and a specimen of tissue removed showed it to be a squamous-cell epithelioma, grade 3. He was given deep roentgen-ray treatment, both here and at home and, in addition to this, radium was introduced directly into the bronchus through the bronchoscope. He began to improve immediately and within a year after his return home he had gained 30 pounds in weight, and all of his pulmonary symptoms had disappeared. The last radium treatment was given in October, 1929. His health remained good until May, 1930, when severe marked diarrhea developed, the cause of which has not yet been determined, as he has just returned for examination.

One of the chief reasons why we have advocated bronchoscopy in cases of pulmonary disease, particularly if operation for pulmonary abscess is considered, is to rule out the presence of primary carcinoma of the bronchus before operation is performed. In the past, we have had very little hope that carcinoma of the bronchus would be amenable to any type of treatment, but I feel that the condition of this patient at the pres-

ent time should encourage us to adopt this type of treatment in all cases of bronchial carcinoma.

Case 23. G. S., 10 years old, February 7, 1924, was kicked by a horse just above right knee, three months ago, and since then this area has progressively and gradually enlarged. Examination: Right knee three or four times size of left, unable to fully extend knee. Diagnosis of x-ray report, osteo sarcoma. No evidence of chest metastasis. (L. C. Kinney.)

Fig. 4A Fig. 4B

Fig. 4. Case 23. (a) First roentgenogram showing sharply outlined tumor in lower left thorax. (b) Showing progression in development.

February 8, 1924, was discharged, unimproved, refused operation. Later leg was amputated above knee at Paradise Valley Sanitarium.

November 7, 1929, readmitted. History: almost continuous colds for several years. Drainage from left ear for five years, drains about two or three months each year. Diagnosis: infected tonsils and adenoid, chronic suppurative otitis media, ozena. Continuous raising of heavy muco-pus. Repeated x-ray examinations (Figs. a and b) show a progressive enlargement of a tumor mass in left lower lobe. This has been a subject for considerable guess work with all sorts of probabilities. Bronchoscopy: Pressure on left second bronchus medial side. Dr. Krause, of Tucson, when in San Diego this year, gave a probable diagnosis of dermoid cyst. Dr. Parowski, of Vauclain Tubercular Hospital, gave diagnosis of cyst connected with bronchus and advised and d'd artificial pneumothorax, with no relief. Patient's chest was later opened by Dr. Chas. W. Fox, on the left side, two-stage operation, when there was found a thick, bloody, grumous mass filling the entire lower left lobe area. Examination showed this to be a giant cell sarcoma, chronic inflammation with pigmentation of sarcoma areas. At the present time patient is near death.

Case 24. O. D. June 26, 1928, admitted to the San Diego County Hospital. History: Pain in stomach, loss of weight, and vomiting of blood two nights ago. For several weeks, unable to take solid food. Pain in pit of stomach relieved by food. No history of belching of gas, nor passage of blood in stools.

November 23, 1925, difficulty in swallowing for five years. Present illness, five years ago began to have difficulty in swallowing any solid food. Thinks has no more difficulty now than had four or five years ago. Loss of weight, 150 pounds to 118 pounds in last three years. X-ray, September 11, 1925, with the usual barium mixture there is an irregular constriction in the esophagus beginning 12 cm. from cardia junction and extending irregularly to the cardiac portion of the stomach. There is no usual dilatation above this beginning constriction. The area of constriction is irregular throughout and in middle portion of this area a part of the esophagus shows almost normal diameter. The narrowest point of constriction measures 4 mm. The heavy barium jelly just barely passes through the narrowest point of the constriction. Stomach small in size, no defects. (Dr. Elliott.) Removal of lymph node from neck showed epithelioma.

June 26, 1928, abdomen examination. Pain and tenderness upper left quadrant. No distinct mass felt. X-ray report: barium down to a narrow stream four inches above cardia. Esophagus above this slightly dilated and showed irregular margin along lower portion. Constricted area about 1½ inches long and esophagus dilated again just distal to this, forming two moderately large pouches connected by a constricted portion. There was only a slight delay in the passage of the barium through this constriction. A film taken only 15 minutes after ingestion of barium still showed a small residue. This is not typical of the usual annular malignant infiltration.

August 2, 1928, esophagoscopy, twenty minutes' duration. Large esophagus, 1½ inches in diameter, with inflammation of distal end of esophagus area above mass, this desquamated area covered with thick plastic exudate or membrane. Two large finger-like masses projecting into esophagus. Not ulcerated and difficult to make bleed. Unable to obtain specimen for biopsy as masses squeeze out of forceps. Unable to pass bougies through mass blocking lumen. Immediate postoperative condition, no shock. (C. W. B.)

Autopsy record, esophageal malignancy.

Fig. 5

Fig. 5. Case 25. Lateral roentgenogram showing bronchiectatic cavities filled with lipiodol.

Case 25. K. H., February 27, 1930. Frequent colds. Productive cough with whitish masses, never been blood-streaked. Loss of weight and strength, 185 pounds two years ago to 114 pounds at present. Tires easily, night sweats. Asthmatic attacks for two years. Occasional pleurisy pains. Bronchoscopic examination, February 27, with lipiodol injection. Findings, thickened mucous membrane. Carinae are thick and red, heavy plug of tenacious

mucus in right and left bronchus. Left bronchus lumen is much smaller than right and is shoved backward.

X-ray, February 27, after lipiodol injection, anterior-posterior and lateral positions show a large mass of opaque solution in the medial half of the right base. (Feg. 5.) Shadow measures 2 by 4 cm. (Kellogg.)

March 18, 1930, bronchoscopic examination. Third bifurcation on right side very red, bronchus leading from that portion of lung near midline. Profuse amount of muco-pus.

FOREIGN BODIES REMOVED BY PER ORAL ENDOSCOPY

No. 1—L. S., 80, May 12, 1926. Rabbit bone in cricoid narrowing.

History: Eating rabbit for breakfast this morning and felt a piece of bone in throat. Wearing full set of false teeth and did not notice bone in mouth at time of swallowing. Examination: Indirectly, unable to find evidence of foreign body. Local anesthesia, with pharyngoscope and alligator forceps removed small triangular piece of bone from cricoid narrowing, right side. Sitting posture. Duration of bone in situ, three hours. Time of removal, one minute.

No. 4—E. C., 22 months, Feb. 7, 1925. Peanut in right bronchus.

History: Child was brought in to County Hospital with history of having been fed peanut brittle on January 31, 1925. Child had been treated before admission to Hospital, for pneumonia. On admission, child was breathing laboriously and had rattle in the lungs. Physical examination: Temperature, 99.8°; pulse, 110; respirations, 34. Chest resonance clear over both lungs. Slight bronchial breathing over right lung, anterior. Small amount of large moist rales heard over right lung. X-ray: considerable inflammatory reaction around lower right bronchus, which is probably site of foreign body. (Dr. L. C. Kinney.) Bronchoscopic examination: Right bronchus shows edema and ulcerations with granulation. Through granulations reveal white foreign body, which was macerated. Removal of peanut in four pieces, using bronchoscope and long straight grasping forceps. Duration of peanut in situ, about one week. Time of removal, thirty minutes. Following removal of foreign body child continued with pneumonia, having a temperature varying from 100° to 104°, with usual symptoms. X-ray, Feb. 20, 1925: Chest shows pneumonia, right base. Recovered and discharged from hospital, Feb. 28, 1925.

No. 5—Mrs. I. F., 65. Nov. 2, 1926. Fishbone in cricoid narrowing.

History: Eating fish night before and on account of having false teeth did not notice fishbone in mouth. Swallowed bone and immediately choked. Called family doctor about eleven o'clock at night, who admitted her to hospital the next day. Examination: Patient invalid and bedfast for two years. High blood pressure. Myocarditis, unable to lie on left side at all. X-ray report: There is an abnormal shadow in the midline at the level of the fourth and fifth cervical vertebrae, which probably represents the fishbone faintly outlined. (Dr. W. O. Weiskotten.) Under local anesthesia, removed rib of fish 1⅜ inches long from hypopharynx, just above cricoid narrowing, high end pointing to right wall and stuck into wall. Opposite end to left and lower. Bone broken ¼ inch from the end. Instruments used, pharyngoscope and alligator forceps. Sitting position. Duration of bone in situ nineteen hours. Time of removal, one minute. Patient remained in hospital for three days, running slight temperature, had sore throat, difficulty in swallowing, some edema. At end of the third day much improved and sent home.

No. 7—H. W., 37. Feb. 3, 1927. Bent pin in bronchus. History: Coughing spells about 1914, thirteen years ago. Would take off belt and put around chest or lay hands on chest, which would give relief. For the last ten or twelve years slept on face with hands across chest. After went with destroyers, one month ago, surroundings were damp and started coughing again. Coughing right along, but not spasmodically, until one month ago, sometimes one or two spells a day, lasting from fifteen to twenty minutes and seemed as if he would strangle. Coughed hard, raised phlegm, and got relief. Night sweats. X-ray taken showed foreign body, bent pin, in right bronchus. Sent to U. S. Naval Hospital. Gave ¼ grain morphine sulphate, 1/150 grain scopolamine, one hour before painting throat with cocaine. Operation, February 7, 1927. Findings: No ulcerated areas but two or three nodulated fibrous masses where pin has caused constant irritation. Removed rusty bent pin from right secondary bronchus. Pin so rusty it broke at bend when being pulled into bronchoscope. Grasped point with long Tucker tack grasping forceps. Time of removal, two minutes. Duration of pin in situ, fifteen years. Feb. 10, 1927: Last night had pain in chest and up until nine o'clock this morning, when disappeared. Thought perhaps it was due to sleeping in close steam-heated room. March 1, 1928, no more coughing spells and feeling fine.

No. 8.—T. C., 2. Dec. 10, 1925. Penny in esophagus. History: While playing on floor three days ago swallowed penny and x-ray taken by Doctor Apple of El Centro showed foreign body in throat. Child unable to swallow foods but could swallow liquids and water. X-ray: There is metallic foreign body in the neck opposite the level of the seventh cervical vertebra. (Dr. L. C. Kinney.) Examination: Pharynx and esophagus edematous and red. Coin bathed in heavy tenacious mucus and sunken in edematous tissue. Removed penny from esophagus, no anesthesia, with six millimeter esophagoscope and long grasping forceps. Duration of penny in situ, three days. Time of removal, one minute. Good recovery.

No. 9—R. N., 35. Oct. 29, 1927. Bone in pharynx. History: While eating spare ribs and kraut at 12:30 noon today got a piece of bone in throat. When swallowing bone had terrific choking spell and thought was going to die. After awhile felt better and able to breathe easily, but sharp pains continued in throat.

Admitted to County Hospital. No x-ray taken. Examination: Foreign body in right pyriform fossa, upper end sticking in right side, into lateral wall of pharynx. Could not see lower end. Under local anesthesia, removed bone from crico-pharyngeal area with pharyngoscope and alligator forceps.

No. 11—Baby C., 2½. Nov. 26, 1922. Coin in esophagus. History: Two months ago swallowed penny and passed from rectum, found in stool. This morning at 8:30 swallowed penny and choked. Has been vomiting off and on all day and very drowsy. No x-ray was taken. Examination with fluoroscope shows coin in esophagus at sternal notch. Removed coin with pharyngoscope and alligator forceps. Time of removal, three minutes. Duration of penny in situ, ten hours. Good recovery.

No. 14—Baby D., 18 months. 1922. Screen in cricoid narrowing. History: Child was playing on floor and mother thinks piece of screen was brought in by another child from the street. Noticed child

choking and tried to remove foreign body with finger but unsuccessful. Admitted to County Hospital next morning. X-ray showed screen in cricoid narrowing. With no anesthesia removed with pharyngoscope and alligator forceps. Time of removal, one minute. Duration of screen in situ, sixteen hours. Size of screen, ¾ by ½ inch, ragged edges. Good recovery.

No. 17—M. M., 7, metal slug in pharynx. History: Out playing with children. Had large slug in mouth and accidentally swallowed it, lodging in throat. Severe pain on swallowing and unable to turn head to right or left. Chin up and shrugged shoulders when swallowed. Operation: Removed slug from throat with pharyngoscope and alligator forceps; no anesthesia. Time of removal, one and a half minutes. Duration of slug in situ, three hours. Diameter of slug, one and a half inches. X-ray by Dr. McCausland shows metallic body in pharynx.

No. 20—Mr. S., 86. March 17, 1928. Large piece of meat in larynx. History: Deaf, blind. Has been ill for good many months. Has been on restricted diet. Aged lady caring for patient gave him tray with large chunks of roast beef, then left room. Soon heard him gagging and a man in the house removed large piece of meat from his mouth, thinking that was all. Called a doctor, who upon arrival found patient very cyanotic; heart still beating, but in three minutes patient was dead. Post mortem examination: Removed large piece of meat from larynx where it completely capped the larynx, blocking the airway. Meat measured 2¼ inches by 1¾ inches by 1 inch. Laryngoscopic, bronchochoscopic and esophagospic examination after removal of chunk of meat revealed no pathology. This was all done post mortem one hour after death.

Comment: Had this man had a tracheotomy immediately upon arrival of the doctor who was called in attendance, his life would have been saved. However, the doctor was prepared to do none of these things and a large piece of meat having been removed, felt there was no more in the mouth or throat that could be removed and possibly a piece had been lodged in the larynx or trachea. However, with a man eighty-six years of age, blind and deaf, in my opinion this was a very happy termination for him.

No. 21—C. B., 4 months. March 24, 1928. History: At 10 a. m. was brought in to office by emergency police ambulance with history of having swallowed safety pin. Sent to County Hospital where antero-posterior x-ray was taken, at 11 a. m., showing a closed safety pin in the left bronchus. At 2 p. m. the same day, without further x-ray or fluoroscopy, examined bronchi for pin. Unable to find it. Another x-ray revealed pin in abdomen. Child had some difficulty with subglottic edema yet at no time cyanosis. Ran slight temperature. Discharged from hospital in four days. Pin was recovered by sifting the stools at 5:30 the next morning.

No. 22—M. J., 2. March 31, 1930. History: Admitted to the San Diego County General Hospital. Patient swallowed peanut Thursday, the 28th. Chest: Whistle on examination heard throughout both lungs. Percussion same throughout. No rales. Peanut in situ, four days. Bronchoscopy April 1; time, 30 minutes. Findings: inflammation of trachea and bronchi with marked swelling of left main bronchus. Meat of peanut in secondary left bronchus to median line. Operation, removal of foreign body (peanut meat).

No. 23—E. C. G., 5 months, March 17, 1931. History: Brooch pin in throat for two hours. Child brought to my office with Dr. Parker holding head down so that saliva could run from mouth to keep child from choking. Brooch, with shoulders of brooch in esophagus, neck in cricoid narrowing, and face of brooch to face the back of pharynx. Fish-hook-like connection where pin was fastened onto body of brooch. This was hooked into posterior surface of inter-arytenoid space, pin point was up in epipharynx, that is, above soft palate. Operation: Child-size laryngoscope with alligator forceps grasped point of pin and attempted to pull out pin but would not give, grabbed head of pin and attempted removal but would not give loose. Then pushed down and toward posterior wall of pharynx and pulled toward epipharynx and loosened fish hook connection and removed foreign body. Fig. 6a.) Sent patient to County Hospital for observation on account of possible post-operative edema. Next morning child was discharged well, no difficulties, and had nursed twice before discharge from Hospital.

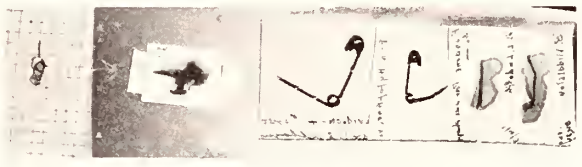

Fig. 6

Fig. 6. Foreign bodies reoved by per oral endoscopy.

(a) Case 23, brooch removed from pharynx.
(b) Case 26, piece of rabbit bone removed from esophagus.
(c) Case 29, open safety pin removed from esophagus.
(d) Case 30, safety pin removed from hypopharynx.
(e) Case 31, fish bone removed from posterior wall of pharynx.
(f) Case 32, piece of wire removed from hypopharynx.

Case No. 24—Mrs. K., 64. July 7, 1930. History: Sent from police station. Satsuma plum pit in throat yesterday at 2 p. m., eating same and pit got in throat. False teeth. Unable to swallow saliva. Examination: Satsuma plum seed lodged in upper third of esophagus. Removed in few minutes time, local anesthetic.

No. 25—D. S., March 27, 1930. History: Two years ago this June got some lye out of a can and caused lye poisoning. Dr. Winters treated and told mother to give pure vinegar. Always getting food blocked in throat. Now has piece lodged in esophagus and unable to swallow for twenty-four hours. When saliva forms has to spit it out. Examination: Throat negative for redness but mouth fills with saliva and must spit it out. Esophagoscopy in office this date. Removal of olive pit. Passed bougies Nos. 5, 6, 9, 10 and 12.

June 18, 1930, removal of large mass of orange pulp from above stricture. Examination revealed the lumen much larger than formerly.

No.26—M. F., 65, Nov. 29, 1929, admitted to the Scripps Memorial Hospital at La Jolla for diagnosis and x-ray revealed a large mass in middle third of esophagus with radiations to the lateral walls of the chest. She was unable to raise her arms to comb her hair. Had a temperature of 99° to 100° and pains in chest. She was suspected of having a carcinoma and Dr. Sherrill of the Metabolic Clinic requested me to make an esophagoscopic examination. On reaching the cricoid narrowing I found

the esophagus ballooned and filled with sour watery contents, the middle third was almost completely blocked with swelling and granulations. On removal of granulations for biopsy I felt my forceps in contact with very hard substance which was removed. This was a piece of bone. (Fig. 6b.) On further taking of history patient stated she had cooked a rabbit stew, two months before, for her boys, and that she ate some mashed potatoes with gravy on them, at which time her esophagus became blocked, but with no choking feeling. In twenty-four hours following removal of foreign body, her pain was entirely gone, she could raise her arms above her head, and in four days the x-ray showed the esophagus to be practically normal when the patient was discharged. She has been well since.

No. 27—J. K., age 12. Nov. 27, 1929. History: Pin in mouth while playing at school. Swallowed same, lodged in cricoid narrowing according to x-ray by Dr. Kinney. Foreign body slipped down into esophagus, lower third. Removed in one-half minute, ether anesthesia. S. R. W. C. pin with point out of keeper and spread about ½ cm.

No. 28—P. H., 10 months. February 11, 1931. History: Swallowed open safety pin, open point down. X-ray from U. S. N. Hospital shows open safety pin with point down about middle third of esophagus. Examination: Esophagoscopic, saw pin once and then it slipped down into stomach. X-ray immediately after esophagoscopy: There is an open safety pin 2.2 cm. in length within the cardiac portion of the shadow of the stomach. (W. O. Weiskotten.) Pin recovered from stool in two days.

Case No. 29—G. L. D., 4. Aug. 27, 1930. History: Patient entered as an emergency, having swallowed an open safety pin this afternoon. Complains of soreness in throat and is hoarse and has pain with deglutition. Fluoroscopy by Dr. Masserman revealed safety pin (open, angle 35°) lodged transversely in esophagus.

Operation at 5:40. Findings: Medium-sized open safety pin with point to left and up and keeper to right in upper third of esophagus. Removal of open safety pin with esophagoscope and tack forceps, ether anesthesia, twenty-five minutes. (Fig. 6c.) Note: Child was given codeine, gr. ½, and atropine, gr. 1/300, at 4:15. Operation at 5:40, saw pin in esophagus with esophagoscope but patient would not be still and interne and nurses could not hold patient, then gave ether and removed pin during primary anesthesia in a very short time. Altogether, twenty-five minutes. Patient discharged well, September 1, 1930.

Case No. 30—J. C., 7 months. May 22, 1929. History: Playing with cloth doll and had cap pinned on back and front and pulled cap and opened pin, then swallowed it. Examination: Well-nourished baby with open safety pin in hypo-pharynx, opposite the fourth cervical vertebra. X-ray, Dr. L. C. Kinney. Removed pin (Fig. 6d) with child laryngoscope and alligator forceps. Grasped at loop, ethylchloride anesthesia. Two minutes. Attempted before anesthesia, altogether ten minues.

Case No. 31—W. L. L., 57. January 4, 1930. History: Fish bone in throat since last night. Got out two pieces but feels scratch when swallows. Examination: Small piece of bone sticking into posterior wall of pharynx just below upper end of left arytenoid. Cocainized throat, gave 1/500 atropine (H).

Removed bone one inch long (Fig. 6e) buried into posterior wall of pharynx for over ¾ inch; time, ½ minute.

Case No. 32—T. B. M., 50. Dec. 19, 1929. History: Foreign matter in esophagus. Upper teeth false. Eating tongue Saturday night and had choking sensation at time and attempted to dislodge with piece of dry bread. Monday morning felt better, only time feels it is when swallows. Examination: Indirect, larynx red, no visible foreign body and arytenoids will not come forward from posterior wall of pharynx, due to inflammation and edema.

December 19, 1929. First esophagoscopy examination, so much redness and edema unable to find foreign body, passed scope to stomach, returned and carefully looked on return then passed scope two or three times and looked closely at walls and unable to find foreign body. Dec. 20: edema and redness of pharynx more pronounced. Dec. 21, 22, 23: condition improved. Dec. 24: found wire in right side of hypo-pharynx with both ends embedded in edematous inflamed tissues, with only ⅛ to ¼ inch in center exposed in a fold in mucous membrane. Passed pharyngoscope to wire and pulled wire into scope. (Fig. 6f.)

DISCUSSION

DR. H. T. BAILEY (Phoenix): Dr. Brown has shown us that the bronchoscope and esophagoscope are very valuable in removing foreign bodies from the air passages and the esophagus, but they are also valuable aids in studying pathology of these passages. For example, he has shown you pictures of dilated bronchi, also an esophagus that was so dilated as to look like the beginning of a diverticulum, and here, gentlemen, is where an unskilled man may pass a bronchoscope into a dilated esophagus or into a diverticulum and rupture the esophagus. In the air passages one can study many pathological conditions as papilloma, ulcers, bronchiectasis, chronic abscess of the lungs, cancer, et cetera. In regard to pain, many times a patient will deceive you as to location of a foreign body. For example, I had one patient who said that while eating soup he had a bone lodge in the upper part of the trachea. He said he knew the bone was there because he could feel it there. I found the bone partly buried in the right tonsil but under the anterior pillar in such a position that it could not be seen until the anterior pillar was raised or lifted forward and out. Another patient said that while some one was painting his nose with an applicator covered with cotton, the cotton slipped loose from the applicator and was drawn into the larynx. He knew it was in the larynx because he could feel it there. I found the cotton under the inferior turbinate on the left. A peanut or other vegetable substance, when inhaled into the lung, causes pneumonia more often and more quickly than do solid substances.

When a patient complains of having a fish bone in the throat and you can not see it, paint the throat with mercurochrome, then spray the throat or have the patient gargle to wash the mercurochrome out of the mouth and throat. The fish bone takes the stain of mercurochrome and can then be seen.

Dr. Brown has shown you a lantern slide illustrating a penny in the throat. This penny is in the upper part of the esophagus because the flat side of the penny is forward. If it were in the larynx the edge would be forward. In my early experience I had a patient whose x-ray showed a small shawl pin in the right bronchus. I tried to remove this under general anesthesia. The child awakened about the time I grasped the pin. During the coughing and gagging I loosened my hold on the pin and removed the bronchoscope. The child swallowed. The next day another x-ray showed the

pin in the region of the appendix. Later it passed with the stool.

DR. J. J. McLOONE (Phoenix): I would like to tell about one of my cases of bronchoscopy which I had several years ago, as it was rather unique in its etiology. A case of a foreign body in the esophagus was referred to me early one August morning. The history given by the patient was as follows: About 4 a. m., his thirst being very intense, he hurriedly seized a bottle of beer and removed the cap with his teeth. The contents of the bottle not being cold, the air impact blew the bottle cap into his esophagus. When first seen he had already had his x-ray made and this showed a round serrated body just below the crico-pharyngeus. The cap was removed with little difficulty and patient was advised in the future to use an opener instead of his teeth at any time he wished to quench his thirst.

PRENATAL CARE

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(Read before the Fortieth Annual Meeting of the Arizona State Medical Association, held at Nogales, May 7-9, 1931.)

We are all familiar with the great progress made during the past decade in surgery, preventive medicine, and methods of caring for the sick, but it is only during the past few years that there has been any consideration for the expectant mother.

I have found the following prenatal regime of great value in the prevention of miscarriage, the delivery of healthier babies and the conservation of the mother's health as well as life itself.

A careful history should first be taken with special attention to those diseases affecting the heart, kidneys, and lungs, and if the patient is a multipara, we should inquire regarding any complications of former pregnancies. As we all know, diphtheria and rheumatism frequently show heart lesions as sequelae and nephritis is the usual complication of scarlet fever, this condition frequently persisting to chronicity.

From a standpoint of life for the mother, pulmonary tuberculosis is, to me, always an item of grave concern. A careful physical examination is very necessary. This examination must be comprehensive enough to give us a true picture of this patient's physical condition. The basal metabolic rate, blood test, urinalysis and blood Wassermann, all give us valuable information.

Examination of the pelvis, including measurements, reveals pathological conditions of the pelvic contents such as patulous eroded cervix, or possible tumor, situated in such way as to interfere with delivery, and an occasional pelvic deformity. This examination should be made in the early months of pregnancy and must never take the place of periodical examinations necessary as the pregnancy progresses. Periodical examinations include routine blood pressure, urinalysis, determination of fetal heart sounds and position and presentation of the fetus. A cleaning up of all foci of infection, wherever they may exist, whether in teeth, tonsils, or sinuses, is strictly in order. The false idea that any surgical procedures relating to sources of infection, such as extraction of a tooth, removal of chronic infected tonsils, or the drainage of a purulent sinusitis, might be the cause of miscarriage should be explained to the patient as erroneous.

A patulous eroded cervix must be regarded as a source of infection and might be the cause of nausea and vomiting. This condition is well treated with application of 10 per cent silver nitrate solution and, if necessary, cauterization, carefully avoiding rupture of the amniotic sac. Of course any suspicious vaginal discharge requires microscopic examination and, if gonococci are found, the condition should be treated. Due to the fact that 25 per cent of all pregnant retro-displaced uteri end in miscarriage, special instructions should be given the patient to avoid all strenuous exercise and sexual intercourse, with rest in bed at those periods corresponding to the menstrual epochs.

The heart probably suffers more than any other organ during pregnancy. The fact that one fails to detect a valvular lesion does not satisfy us that the patient has a heart capable of withstanding the strain of pregnancy. Cardiac distress following exercise is very suggestive of myocardial insuffiency (decompensated heart) and a teleo of the heart and an electrocardiogram will help to guide us in handling this very common complication.

With a heart low in reserve, rest in bed will frequently prevent a loss of compensation. Recently a patient came to me, six months pregnant, with dyspnea, a pulse rate of 130, and swollen feet; in other words, classic symptoms of decompensation. Rest in bed was ordered and, with no other treatment, all signs of decompensation had disappeared after a few weeks. The patient was kept in bed almost constantly and was finally delivered of a full-term baby and made an uneventful recovery.

Many cases of pregnancy are complicated by incipient tuberculosis, or reactivation of an old tuberculous focus, and there are also cases of advanced tuberculosis which had better be considered as tuberculosis complicated by pregnancy. The opinion among

physicians is about equal as to the method of procedure in these cases. In fifteen cases of tuberculosis, graded from arrested to far advanced, fourteen improved during and after pregnancy; the single case, which terminated in death, was not known to have the disease until she had a large pulmonary hemorrhage, which was the forerunner of an overwhelming infection. One of the fourteen cases applied to me for care at the end of the third month of pregnancy. She was 38 years old, had two children, aged 10 and 13, and had had pulmonary tuberculosis for the past ten years. For five years previous to her pregnancy, she was an absolute bed patient and at the time of pregnancy was up only for meals and bathroom privileges. Her general condition improved during pregnancy and she gave birth to a baby that weighed 7 lb., 9 oz. This patient is at this time in better condition than at any period during the last ten years.

I did not realize the frequency of hypothyroidism in obstetrics until I had determined the basal metabolic rate in seventy-three cases, and was impressed with the valuable information obtained therefrom. I make this test a routine procedure. During the first four months of pregnancy the basal metabolic rate fluctuates considerably, but after this time it remains more constant minus results showing a large preponderance. In the seventy-three cases, 80 per cent were minus, and 20 per cent **markedly** minus, ranging from minus 20 to minus 30. The hypothroid condition in the mother will be repeated in the baby. Underfunction of the thyroid produces overweight, and retards mental and physical development. Overweight at birth usually means hypothyroidism. In twenty-eight cases where thyroid was given, the minimum weight was 5½ pounds; maximum weight, 9 pounds. Only seven babies weighed over 8 pounds, average weight being 6½ pounds. One case, where the basal metabolic rate was minus 16, was given thyroid for two months, then moved to Chicago, where thyroid was discontinued, and was delivered of a 10½ pound baby. If the mother is given ¾ to 3 grains of thyroid daily from the fourth month until delivery the doses being guided by pulse rate and nervous symptoms, the development of the baby and the condition of the mother will be benefited.

Proof of the necessity of routine Wassermann is demonstrated by the percentage of positives found in 792 cases, forty women showing 4 plus positives. Of these 40 cases not all received prenatal care. Some were seen for the first time when in labor. Of the thirty cases given treatment during the early months of pregnancy, only one aborted. Twenty-nine term babies were delivered.

In a case from my records, seen first in labor, a macerated baby was delivered. Examination of mother's blood showed 4 plus. Two years previous to this time she had given birth to a full-term, macerated fetus. This woman refused treatment, but came back a few months later, three months pregnant. Anti-syphilitic treatment was begun and lasted throughout her pregnancy. Since then she has been delivered of two full-term babies with no signs or symptoms of syphilis. These children are now four and three years old respectively and apparently in perfect health.

Of the total maternal deaths incident to childbirth, 20 per cent can be attributed to toxemias of pregnancies, which may be classified as follows:

1. Simple nausea and vomiting;
2. Pernicious vomiting;
3. Low reserve kidney;
4. Nephritis complicating pregnancy;
5. Pre-eclampsia;
6. Eclampsia.

The treatment for nausea and vomiting depends upon the severity of the symptoms. In the milder cases sedatives such as luminal may be used, ¾ to 1½ grains three times a day; increased carbohydrates; prohibited sexual intercourse. If the case is severe and does not respond to the above treatment, it will be surprising to see the good results obtained from isolating the patient from the family. In these cases glucose is given intravenously, 300 c.c. of a 25 per cent solution, administered two or three times daily. The injection should be given slowly, at a rate not to exceed 4 c.c. per minute.

Retroversion, if considered a cause, may be corrected by pessary. Rarely do I find it necessary to terminate pregnancy on account of vomiting.

A low reserve kidney occurs in about 5 per cent of all toxemias of pregnancy. The renal function is usually normal up to the eighth month, at which time symptoms of diseased kidney may appear, such as a small rise in blood pressure and a slight trace of albumin in the urine. These symptoms disappear within three weeks after delivery and there need be no apprehension of future pregnancies, as would be the case in chronic nephritis, where we would have high blood

pressure, particularly diastolic, with albinuria. These symptoms persist long after delivery and are warnings against future pregnancies. The treatment consists of rest in bed, with restricted protein and salt-free diet, and the administration of fluids. If rapid improvement is not shown under this regime, termination of the pregnancy should be considered.

The pre-eclampsic state comprises about 5 per cent of the toxemias of pregnancy. Pre-eclampsic state comprises about 5 per cent of the toxemias of pregnancy. Pre-eclampsia, if recognized in time, may be controlled and the convulsions and coma of true eclampsia averted. Frequent blood pressure readings and uninalysis are desirable, noting the increase or decrease of albumin. These tests, together with history of headaches, dizziness, and distorted vision, will be the guide as to progress in the case. I have found the treatment in these cases to be rest in bed, saline catharsis, salt-free and restricted diet with elimination of all meat proteins. If there is no improvement, labor should be terminated. In eclampsia the factors which foretell a grave prognosis are: Rise in pulse rate and blood pressure and temperature, with increase in amount of albumin in the urine and number of convulsions and depth of coma. When convulsions are established, the patient should be hospitalized under the following regime: Hypo. of morphine, gr. ½ at first dose; then gr. ¼, repeated as often as needed to control the convulsions. Oxygen inhalation between convulsions (to relieve anoxemia). Glucose, 300 c.c. of a 25 per cent solution, intravenously, repeated every six hours. Spinal puncture, usually every six hours until pressure is normal. One or two ounces of a saturated solution of magnesium sulphate is given through a duodenal tube inserted through the nose. I do not consider eclampsia an indication for cesarean section. Nothing is done to hasten labor until the second stage, when low forceps may be applied.

In conclusion, I wish to emphasize the necessity of routine examinations in the pregnant woman. You are not only serving the patient, but yourself as well, for you will be in a better position to handle the many problems which may complicate the delivery through a better knowledge of the obstacles to be surmounted. I also wish to emphasize the importance of laboratory findings, the determination of the metabolic rate, blood chemistry and the electrocardiograph.

BIRTH INJURIES IN THE NEWBORN. ESPECIAL REFERENCE TO INTRACRANIAL HEMORRHAGE

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(Read before the Fortieth Annual Meeting of the Arizona State Medical Association, held at Nogales, May 7-9, 1931.)

Birth injuries in the newborn are almost numberless in variety. Certain among them, however, are the more common, and their frequency is so great as to provide the purpose for the presentation of this short paper. Statistics presented in the literature of recent years, coupled with our individual observations, indicate the need for closer attention to this phase of obstetrics.

Every conceivable type of injury may be suffered by the child during labor and delivery, especially if the latter is artificial. This may vary from simple and unimportant abrasions and contusions of the skin, through the gamut of cuts, tears, punctures, injury to viscera, fractures of bones, crushing or disruption of parts, even to dismemberment. Many of these are rare and are caused by an overwhelming combination of circumstances, or absurd incompetency on the part of the medical attendant, so that discussion here has no practical value.

Most of the birth injuries which concern us are those resulting from pathogenic variations in the so-called physiological function and mechanism of labor, and errors in the judgment and technic of delivery. Our attention, therefore, centers chiefly upon those which, by their frequency, their effect upon the child especially if it lives, and their susceptibility to prevention, force themselves into our every-day practice as obstetricians. A summary of the facts should enable us to draw valuable conclusions and put into force definite obstetrical principles, increasing greatly the welfare of the child as it comes into the world.

The occurrence of birth injury is much greater than we formerly believed. By far the most frequent and the most important to us is intracranial damage and hemorrhage. Lumbar puncture performed upon five hundred consecutive newborn babies at the City Hospital, Welfare Island, was reported by W. Sharp and McClaire six years ago to show bloody cerebrospinal fluid in 9 per cent. Only a few of these, however, showed symptoms, and still fewer died and came to autopsy. This tends to show some damage done to many infants which is not discovered by ordinary symptoms or methods of diagnosis. Sarbin's report in 1927 on a series of 320 fetal postmortems at the Chicago Lying-In Hospital showed over 20

per cent of the deaths due to cerebral damage and hemorrhage. Ehrenfest finds various sized hemorrhages in the brain substance in about 65 per cent of all young infants coming to autopsy. Lacerations in various dural folds are found, with or without hemorrhages, in about 50 per cent of such autopsies. Of the infants who are born dead, or who die soon after birth seemingly as the result of asphyxiation, between 70 and 80 per cent actually die from intracranial damage. J. Partridge states that in healthy mothers nearly half the infants who are alive at the beginning of labor and yet are born dead, succumb as the result of intracranial injury. Other injuries resulting in hemorrhage into viscera, especially the adrenals, fractures of the long bones, fractures and separation of vertebrae resulting in spinal cord damage, nerve injuries, especially to the seventh cranial and to the brachial plexus, as less frequent but may cause permanent damage and even death to the infant. Although statistical study is unsatisfactory, due to lack of standardization, it would seem that, of the one hundred and twenty thousand fetal deaths yearly in this country, an altogether too large percentage is due to birth injury.

While the mechanism and pathology of many of the birth injuries is simple and obvious, yet that which has to do with intracranial damage may be somewhat more complicated. It must always be remembered that more or less molding and adaptation of the fetal head to the size and shape of the birth canal is necessary in the majority of births. The close proportion, and in many cases, unfavorable disproportion between the two, requires this molding. It is made possible by the soft cranial bones and the wide sutures and fontanelles. When this condition occurs within normal limits and is brought about by normal forces, it usually serves the best combined interests of both the mother and child. When it occurs suddenly, or to a degree beyond the limits of compensation, and especially if the force is exerted either as compression or traction, putting stress in an unfavorable diameter, intracranial damage results. Chase feels that subdural hemorrhage is usually the important intracranial lesion in cases of birth trauma. It is nearly always associated with tentorial splitting.

Beneke, in 1910, described the pathology of tentorial laceration, and it is agreed by most recent authors that intracranial hemorrhages of clinical importance are usually situated just above or below the tentorium cerebelli. Holland, quoted by Dicks, clearly and briefly explains the mechanism of these tears. The septa are normally in a state of rest, and without tension. When the head undergoes changes of shape, tension on the septa is inevitable, owing to the manner of their attachment to the cranial bones. Especially when the head is compressed in the occipito-frontal diameter, with the elevation and bending of the vault, the middle two-thirds and the inferior free edge of the falx-cerebri and the tentorium cerebelli are stretched and tense. If the process is continued, the tentorium will become overstretched and tear near its free border, just below its junction with the falx. Premature infants are much more subject to this damage because of the late development of connective tissue in the fetus and the resultant lack of support to the blood vessels. Frequently there is actual contusion and laceration of brain tissue resulting from excessive overlapping at the sutures or marked depression of one or more bones of the cranial vault. I have noted the latter in the hard heads of overterm babies.

In addition to tearing and hemorrhage, there is also the effect of the general rise of intracranial pressure. It is believed that frequently the crowding down of the medulla oblongata into the foramen magnum plays an important part in fetal death. Other brains will show merely excessive edema and many small punctate hemorrhages throughout the cortex substance itself. The history of the labor will often show long delay in expulsion of the head after complete dillatation and rupture of the membranes. Long continued hyperemization of certain parts of the brain with anemization of other parts, results. Excessive engorgement of the sinuses must be considered in all these cases, and it is always present in the after-coming head in breech deliveries. Intra-uterine asphyxia, with the resultant excessive engorgement of the cranial blood vessels, is an important contributing factor in all cerebral hemorrhages and, according to Irving, has never been given the attention it deserves.

These intracranial injuries may manifest themselves in many ways, and such signs and symptoms aid in the diagnosis of impending or actual damage. During the second stage of labor the fetal heart tones may show changes. Marked slowing of the rate taken between pains is suggestive of compression, providing the other possible causes of such change are ruled out. A fetal heart rate which has been slow, then suddenly accelerates markedly in the course of a difficult second stage, is more than suggestive of hemorrhage having occurred. Irregularity of the rate has some significance providing

that peculiarity did not exist before or at the onset of labor—a point which should always be observed. Marked fetal movements when the head is on the perineum, especially if the progress is slow, should warn of impending asphyxia and the part it plays in the causation of hemorrhage. Above all, the thorough obstetrical evaluation of the case, and the visualization of what the fetus is experiencing from a mechanical and traumatic standpoint, will aid in giving early consideration to its distress and danger.

After the birth of an infant with a traumatized brain, resuscitation may be difficult. In fact, frequently it is impossible, the heart continuing to beat for some time, but respirations absent in spite of treatment. Occasionally little is noted during the first twenty-four hours. Then the attention is drawn to the feeble cry and a disinclination to nurse. An occasional child will cry more than usual. Increased tension or actual bulging may be noted at the fontanelles. There may also be unusual pallor, or intermittent cyanosis. Respiratory stridor, nystagmus, and ptosis usually are soon overshadowed by the more obvious twitchings, rigidity, convulsions and hyperthermia. The picture is then complete, especially so if lumbar puncture shows a bloody spinal fluid.

Clinically, most birth injuries are due to faulty factors in the labor or delivery, or both. Not all of them are within the jurisdiction of the medical attendant. Authorities are agreed, however, that most of the contributing causes are, as has been stated, mechanical and traumatic. In most instances of cranial and intracranial damage, it is due to the sudden or excessive compression of the head, especially in unfavorable diameters. These factors may occur in spontaneous labors, in precipitate deliveries, especially following the use of pituitrin, and much more readily if the fetus is premature. Disproportions and pelvic irregularities, a rigid cervix, a thick, heavy perineum, uncorrected malposition of the head bringing compression in unfavorable diameters, are all contributing factors. Delayed delivery under these conditions, results in many damaged fetal brains, as the time factor is frequently as important as the compression. The co-existence of the two is especially dangerous and the absence of a well-done and properly timed operative delivery may permit the immediate or later death of the fetus.

Known to everyone is the fact that birth injuries are especially prone to occur in operative deliveries from below. Failure to make true cephalic application of the forceps, too strong traction, especially when not parallel to the axis of the birth canal, together with poor judgment as to the time of attempting instrumental delivery, increase the possibilities of damage at an alarming rate. Force, especially traction, in delivering the shoulders, is frequently the cause of damage to the fifth and sixth cervical roots, also the seventh and eighth, according to Sever, who reports eleven hundred cases of obstetrical paralysis. Breech extraction and especially version and extraction with frequent frantic efforts to deliver the child in the absence of the required judgment and skill, is an important cause, not only of tentorial tears, but of broken arms, damage to the brachial plexus, ruptured thoracic and abdominal viscera, fractured or separated vertebrae with hemorrhage into, or severance of, the spinal cord, together with many less serious injuries. Cord injuries practically always follow breech extraction and are due to traction and lateral flexion of the trunk. In resuscitation of these infants, the Schultze method is reported to be responsible for the immediate death of immature infants by causing extension and diffusion of already existing small localized hemorrhages.

The future of these damaged brains is not dissimilar to that obtained in adult brain injuries. The child, of course, frequently dies. Of those that live, many give no outward signs even after many years. Frequently, though, there is paralysis, a spastic paraplegia, mental as well as physical stunting, and behavior difficulties.

Treatment is indicated according to the nature of the injuries, and needs no elaboration in those pertaining to the trunk. It is limited in its scope when dealing with intracranial lesions. In the light of our present knowledge, it comprises careful handling to prevent extension, the giving of brood intraprevent extension, the giving of blood intramuscularly or intraperitoneally, repeated lumbar puncture in certain cases, and in a few decompression operations. In nerve trunk damage anastomosis has been tried, but authorities generally report poor results. Occasionally much is accomplished, but many are left with permanent evidence of damage.

The prevention of birth trauma is our most satisfactory solution. As elsewhere in the science of medicine, even at the expense of repetition, a proper evaluation of the individual case, as well as a profound respect for the intricacies of obstetric practice, is necessaryy at the outset. A knowledge of the individual mother and babe to be born can

best be secured by careful, trained observation in the prenatal period. Many of the problems to be later met in the delivery room can be ascertained, and many of them simplified. A hemorrhagic diathesis may yield to proper prenatal treatment. Fetal size should be kept, when possible, in proportion to that of the pelvis. Induction of labor by a conservative method is indicated in a few cases where large babes, sufficiently matured, bid fair to cause dystocia later, or when the patient is definitely going overterm. In special cases, safeguarding a mother against the delivery of a premature child susceptible to damage, even if to do a cesarean section later, may be the indicated course. A large percentage of breech presentations may be benefited by external version, although this is not always without danger. Of the other malpositions, some may be corrected, while others are to be definitely noted and properly handled in labor or at delivery.

Regardless of the prenatal care given the patient, or the presence of other favorable factors, the responsibility of the obstetrician at the time of delivery is still great. DeLee continually emphasizes the pathologic trend of labor and scorns the so-called physiological nature of childbirth. The scope of this paper cannot be extended to include the didactic. Davis has read an excellent paper on breech presentation wihch was heard by many of this group, and it has been published in the April issue of Southwestern Medicine. Avoidance of haste is to be emphasized, together with force gently applied along physiological and anatomical lines. I much prefer gentle traction on forceps applied to the after-coming head, to extreme suprapubic pressure. Traction on the trunk or neck is to be slight, or none at all. Proper position and flexion of the head should be observed and brought about in all cases.

Since cephalic presentations are the most common, it is here, numerically at least, that the obstetrician is most often called upon to use judgment. With the fetus showing signs of asphyxia, the giving of an anesthetic, preferably ether, with the hard pains, has been noted to improve the babe's condition, relieving some of the pressure and permitting better aeration. Episiotomy through a rigid pelvic floor is frequently a conservative measure. Pituitrin is mentioned only to condemn its use before delivery except when strictly indicated. It has been likened to a surgical instrument, to be used only by those of utmost judgment and knowledge of its effects. Comparative competency is required in the employment of drugs producing deep narcosis and interference with normal progress in the second stage. As in delayed labor from other causes, the child runs the risk of asphyxia with cerebral edema and hemorrhage, and the need for operative measures may be precipitated. In many of these cases, to leave a fetal head compressed for hours in a pelvis or on the perineum, in lieu of a properly executed instrumental delivery, is as bad for the child as too early interference.

In all operative deliveries, strict observance of the proper indications and conditions is imperative. Selection of the proper type of procedure is all important. It is not good obstetrics to do a disastrous high forceps, perhaps through an incompletely dilated cervix, when watchfulness would have indicated much earlier a cesarean section with resultant benefit to both mother and babe. Lastly, in indicated forceps deliveries, proper cephalic application of the instruments must, and always can, be made before traction. With the head properly flexed, this traction must always be made as gently as possible, and in the direction of the longitudinal axis of the birth canal which prevails according to the station of the head.

Of no less importance is the manner of resuscitation of the asphyxiated infant. A small, localized hemorrhage may be present. Holding it head down for a long period only tends to extend the hemorrhage. Violent maneuvers are worse than useless. The cold water bath has no place in the modern delivery room. Mouth to mouth insufflation usually serves only to blow up the stomach, further embarrassing the infant's heart. While the Drinker apparatus and that of Henderson may be of some value, yet the simple method of DeLee, may be utilized by every obstetrician. With the babe in a warm water bath, a tracheal catheter and glass saliva trap removes the aspirated mucus and blood. With the catheter again in the trachea, the lungs may be gently and rhythmically insufflated with fresh air, expired air with its high carbon dioxide content if desired, or if necessary, with oxygen by filling the operator's mouth with the gas.

The newborn infant is a delicate structure and its hold on life is frequently small. Utmost gentleness and consideration by the attendant is often necessary to give it the chance it should have. To quote the thought of DeLee, it will be only when the high pathologic dignity of obstetrics is recognized by the profession at large that our results will approach what they should be.

DISCUSSION

(Papers of Dr. R. K. Smith and Dr. Floyd B. Sharp)

DR. C. E. YOUNT, Prescott (opening):—A few

years ago I made the plea before this Association that a well balanced program for the annual meeting should always contain at least one paper on an obstetric subject. Today I desire to express, first, my appreciation of the success of the Scientific Committee in having secured two excellent papers on obstetrics; second, to thank them for the honour and privilege of opening the discussion, and, last but most important, to thank the essayists for the excellence of their dissertations.

As pointed out by Dr. Smith, prenatal care has been a subject grossly overlooked by most general practitioners in the past, but, thanks to the rising tide of prophylaxis, it is being born shoreward as a mighty breaker, to submerge in obstetric oblivion those who will not heed its mandates.

I subscribe to practically all that Dr. Smith advocates, but in so doing I am at once reminded that "obstetrics has always been the most time-consuming and the poorest paid work a physician undertakes." (David.) The essayist has made no reference to the subject of economics, but how many of our patients can afford to have routine Wassermann tests, basal metabolism tests, blood chemistry and electrocardiographs when they need them and as often as they need them? Very few of mine could afford this expense, yet I do not deny the value of the knowledge thus obtained. To me it is, as yet, for most of my cases at least, "a consummation devoutly to be wished." However, there are a few things which we can and should do for all of our patients: careful case history, careful physical examination, routine urinalyses, blood pressure, pelvimetry and attention to all infections. These we may do at an expense of time only. Having these records, our obstetric conscience is appeased. We actually possess an intelligent working knowledge of the case in hand.

The blood chemistry, so greatly needed in the study of our toxemias, is often out of the reach of the doctor and patient. Research alnog these lines is greatly needed and "Foundations" may some day place these facilities within the reach of many who must now go without. These remarks apply equally well to the Wassermann test, cardiograph and basal metabolism.

I am glad Dr. Smith has given us his experience with basal metabolism in pregnancy. I am sure it has a great future and I congratulate him on his pioneer work. I have been doing a similar work for years with a very poor "chart" (growth and activity of the mother's thyroid as my guide.) Basal metabolism is scientifically accurate.

Using practically the same method as Dr. Smith, we have not always had the success which he has had in the toxic hyperemesis gravidarum cases. I believe these cases run in cycles. I have gone four or five years without having to perform a single therapeutic abortion on one of these cases, but within the last four months we have had three cases (liver toxic type) in which we nearly lost one patient trying to convince ourselves that the modern methods were one hundred per cent curative.

We, who practice in Prescott, find very often that cesarean section is the safest and quickest way out of an eclampsia, particularly if the emergency is the result of all the sins of omission enumerated by Dr. Smith.

How well these papers correlate each other. If we practice the regime set forth by Dr. Smith we will have fewer birth injuries in the newborn.

In considering forceps as a primal cause of many birth injuries, I like to fortify my obstetric conscience with the thought that "practically all forms of injury from forceps can be produced by spontaneous delivery, including rupture of the globe" (Edgar). I well recall the surprise occasioned by my first experience with a stillbirth in spontaneous delivery, death from cerebral hemorrhage; the patient, a buxom young negress, primipara, with the most forceful pains I had ever seen, a quick delivery,, but to my horror, a head crushed as severely as by any forceps delivery I have ever witnessed. Personally, my greatest birth traumas to child and mother come in primiparae with eight occiput posterior positions and breech presentations. Here the erudite as pointed out by Dr. Sharp, are often called upon to exercise all the skill gathered from their superior training, but what of the rank and file who practise obstetrics? The rationale of the procedure chosen often calls forth our best, the delivery frequently in the midst of most unsanitary surroundings and without trained assistance. I have the deepest respect for the men who thus achieve success, nor do I withhold my admiration for the man who, with due eclat, can master these difficulties in the modern home or hospital with trained assistants.

I think that we might experience a certain reduction of birth injuries by cultivating an obstetric conscience based on the excellent postulates of our essayists. Particularly should we avoid undue haste: you have no engagement to play golf, attend a dinner party, or tell your kiddies a bedtime story; your job, like Mr. Brittling's, is to see it through.

Mathiew and Holman stated, in 1929, that "A recital of the methods of resuscitation of the asphyxiated newborn in vogue at present sounds like a chapter from "Mother India." Nowhere in present day medicine can one see such an antiquated, unscientific and haphazard procedures as those practised in the attempt to induce the newborn child to take its first breath." Concerning this point I have held similar views for some years and even now shudder when I recall the instances of mayhem that I have practised in the name of science. However, when we consider Katherine Mayo's book as it depicts obstetric practices in India, with their appalling maternal and infant mortality, I am inclined to stand with the Pharisee and exclaim, "God, I thank thee that I am not as other men." But these two excellent papers have pointed out our sins of omission and commission and now I stand with the Publican and exclaim, "God, be merciful to me a sinner." To resolve here and now to raise the scientific standard of our obstetric practice and give our cases the meticulous care they deserve, is to "return to our house justified."

DR. D. F. HARBRIDGE, Phoenix:—Quite some years ago a baby was brought to me in a very cyanotic condition and with enormously proptosed eyes. The birth had been spontaneous and unattended. The cord was wrapped tightly around the neck, thus exerting unusual pressure, all but causing complete strangulation. Some time later, after subsidence of the condition, the fundi were examined but no evidences of retinal hemorrhage were made out.

In instrumental and hard labor, occasionally certain ocular disturbances are observed such as moderate proptosis, paralysis of one or more extra-ocular muscles, ptosis, rather rarely, direct trauma to the eyeball due to clumsy use of the attendant's hands, and certain corneal injuries. These latter injuries are usually observed in babies born of rachitic parents in whom pelvic roominess is impaired. These linear opacities may be a single line vertical, or oblique across the cornea, or perchance they may be in pair vertical or horizontally placed. Thomas and Buchanan, of Glasgow, and also Sydney Stephenson of London, have gone into this subject rather thoroughly.

The use of the ophthalmoscope in the care of pregnant women is important. Much advance information of impending danger can be obtained by the use of this instrument of precision. Eclampsia is not primarily a disease of the kidneys but is a

condition due to toxins resulting from the products of conception. These toxins seem to have a predilection for the eye and kidney. Changes in the retina and retinal vessels, significant of impending danger, can frequently be detected long before any kidney involvement is evident through the finding of albumin in the urine. It is quite possible that eclampsia has an endocrine aspect. In view of the fact that our endocrine is simply a part of a change, it is interesting to speculate upon what relationship the thyroid, particularly the para-thyroids, in connection with blood calcium, have to do with the situation. In high blood pressure the perivascularis becomes edematous and thickened and thus interferes with the proper transfusion of blood from the fine capillaries to the venules. With the ophthalmoscope one examines, within the eye, such changes in living tissue with almost microscopic accuracy.

DR. J. M. GREER, Phoenix:—I should like to discuss this paper, "Birth Injuries to the New Born," from the orthopedic standpoint.

Recently, under the activities of the "Arizona Society for Crippled Children," orthopedic clinics, that is, diagnostic clinics, have been held in the Globe-Miami district, in Tucson, and in Phoenix. As yet, a report has not been compiled tabulating the different types of cases seen at these clinics. This will be done, however, and I hope will be published in "Southwestern Medicine." I am told by Dr. Kennedy, of Globe, and by Dr. Clyne and Dr. Gore, of Tucson, that at these clinics there were a great number of spastic paralyses seen and the question of birth injuries was brought to the attention of all who were present at these clinics. In Phoenix we had been complimenting ourselves upon the very few spastics that we had, as they did not appear at the weekly orthopedic clinic held at the Social Service Center. When the diagnostic clinic was held, all the spastics came out and we were really astonished at the large number. I wish that every obstetrician in the state could have been in attendance at these clinics in order really to appreciate what a serious problem this is. As you all know, most of these cases are all but hopeless from a treatment standpoint and their care is a most difficult and heart-rending task from the standpoint of the family. These people are kept from sight, to a large extent, and the family suffer in silence. The public know very little about it. Even the medical profession seldom see these cases and do not realize the hopelessness of the problem. Anything that can be done to prevent such cases will be a most wonderful thing in allaying human grief and suffering.

DR. R. K. SMITH (closing):—Dr. Sharp has given a vivid presentation of intracranial trauma in the newborn. He has brought to our attention the factors in labor and delivery that may cause this condition. He has emphasized the fact that prevention is practically the only cure.

At the Dallas Southern Clinical Society, a few weeks ago, Dr. Grulee, of Chicago, was asked the treatment of cerebral hemorrhage in the newborn. He said the best treatment known to him was to let it alone, that the diagnosis could not be made until 24 hours after birth, and the damage to the brain had been done. He warned us of the difficult differentiation between cerebral hemorrhage, edema of the brain, and congenital heart anomalies. He also mentioned the increase of intracranial pressure caused by the bowing of the back in performing the spinal puncture, and the dangers to the soft brain in a cistern puncture.

But when we see these babies a few months later with spastic paraplegia, epilepsy, et cetera, we then feel the importance of following Donald Munro's "Immediate Treatment of Intracranial Injury in the Newly Born."

While the baby is in shock, it should be kept absolutely quiet in its crib, with external heat and small amount of fluid by mouth through a medicine dropper. Once the baby has recovered from shock, the bleeding and clotting times should be ascertained. If not normal, whole blood should be given intramuscularly or intravenously until the bleeding and clotting times have become fixed at normal. Then spinal punctures should be performed, and manometric pressure measurements made, and spinal punctures repeated as often as necessary to keep the pressure normal. Usually once in the 24 hours is sufficient. In some of the more severe cases one drachm of a saturated solution of magnesium sulphate may be given by rectum.

I enjoyed hearing Dr. Sharp's paper very much indeed.

I agree with Dr. Harbridge concerning the importance of frequent ophthalmocopical examinations in obstetrics, and, while it was not mentioned in this paper, our eye specialist, Dr. Comer, makes these examinations for me. I am not familiar with their use. Especially do we know their value in differentiating chronic nephritis and low reserve kidney. In the former we find albuminuric retinitis and nitrogenous retention.

In closing, I wish to emphasize the importance of preventing abortions, and to do this we must remember the following causes: endometritis, endocervicitis, irritable uterus, retrodisplaced uterus, hypopituitary, hypothyroid, sexual intercourse, chronic nephritis, syphilis, lack of vitamin B.

DR. SHARP (closing):—We have listened to an excellent paper on an important subject. Dr. Smith has not only ably discussed prenatal care, but has given us definite suggestions as to its accomplishment. The development of this phase of obstetrics has marked the greatest single advance in maternity work. Benefited the most, perhaps, is the mother. Proper prenatal care is by far the best way, and frequently the only way, of keeping pregnancy and childbirth a physiological function. We have a branch of the science of medicine known as "preventative medicine." Prenatal care, properly given, is "preventative obstetrics," and the value of prevention of pathology is unquestioned. Prenatal care is still more. It is also pre-operative care, and prepares the woman for those hours when she must run the surgical risks of pain, hemorrhage, infection, sometimes shock, anesthesia, and actual operative procedures. If there are those still uninformed as to these risks, or as to the responsibility of the medical attendant, we refer them to the statistics on maternal mortality made available by the U. S. Department of Labor.

Stimulated by these statistics, there are, from time to time, articles in lay publications, and usually written by laymen. These are calculated to inform expectant mothers as to the need for medical care during pregnancy. I regret that, so far, the medical profession has not taken a great initiative in this education of the public. It has come mostly through lay organizations and publications. Much is still to be accomplished in this education, and I think it should come through the profession, not alone the obstetrician but, when opportunity presents, by every doctor. This should be our next great advance. With all expectant mothers properly informed, most of them would apply early for care. Many of our problems would be simplified and our patients' welfare markedly improved.

The injuries which come to the attention of the orthopedic surgeon have been underestimated. We deplore the birth injuries which cause these cases. They are much more frequent than they should be.

SUDDEN DEATH AFTER SPINAL ANESTHESIA

(Sensitization Phenomenon and Adrenalin Suspected as being Cause; Another Case Reported in Which Convulsion Followed Use of Adrenalin.)

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and
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A woman about 32 years of age had a hysterectomy under spinal anesthesia and nitrous oxide and oxygen part of the time in less than analgesic stage to dull her sensorium and remove apprehension. The operation was finished. She was bandaged and just ready to be removed to a cart to be taken to her room. She was entirely conscious and was talking; in fact she had talked all through the operation. Suddenly she went into a spasm involving her arms, trunk, neck and head. Respiration was promptly suspended. She came out of the first spasm and started to breathe and immediately went into a second spasm with no voluntary respiration thereafter.

For the operation, one ampule of spinocain had been introduced into the spinal canal between the fourth and fifth lumbar vertebrae with the patient in a horizontal position. The usual intramuscular dose of ephedrin was given. She was at once placed in Trendelenburg position.

The notes made in the operating room relative to her condition and the treatment are as follows: "Patient's condition was good—excellent—operation was finished, incision was dressed and she was ready to be transferred to the cart to be taken to her room. She went into a convulsion and respiration was suspended; eyes rolled upward, head was drawn back, and arms became rigid. Three minims of adrenalin were given at once and repeated every few minutes. It was given once by vein, twice in the heart and at least twice intramuscularly. Oxygen was given for forty minutes with artificial respiration. Tongue was withdrawn and throat wiped out though tongue was in good position and no mucus was in throat. Dr. Ketcherside came in early and gave assistance and later Dr. Carson inflated her lungs repeatedly with oxygen. The heart kept up contractions for at least 30 minutes. Alpha lobean was given subcutaneously."

The patient had come to our office asking for a complete physical examination. Her reason for wishing the study was that a second marriage was in contemplation; her former adventure had terminated unhappily, due probably to sexual frigidity on her part. Copulation had such terrors for her that suicide had entered her mind as a relief from it. Her other complaints consisted of a scanty menstruation for several years and an undue tenderness and fullness of breasts. A note was made that she seemed to be mentally depressed. The examination record reads as follows:

She has small tonsils; ears are negative; nose is negative; teeth are in good condition; eyes are normal; neck is negative; lungs seem normal; the heart is moderately dilated so that the apex beat is about four inches to the left of the mid line; there are no murmurs; the right margin is normal. Blood pressure is 122/74. Liver and spleen are normal size; there is tenderness over the appendix area and over both tubes.

The pelvic examination shows cervix in mid line but three times normal size. The body of the uterus is four times normal size and has partial retrodisplacement with a tumor on the anterior surface of the womb. The left adnex has no palpable fulness but is slightly tender. The right is full and tender. The appendix area is definitely tender.

Diagnosis: Fibroid of uterus; chronic appendicitis; salpingitis; slight cardiac dilation.

Blood: Hemoglobin 85; white count 5,400; red count 4,200,000; polymorphonuclears 50; monocuclears 50.

Urine: Straw; slightly alkaline, 1.013, albumin negative, sugar negative, no casts, blood or pus cells, acidity 5.

Vaginal Smear: Many pus cells; no gonococci found.

The pathologist's reports upon the operation specimen is as follows: "Multiple subserous fibroids, sections showing characteristic structure myofibroma with diffuse hyalinization. Appendix shows slight fibrosis of walls."

The autopsy done by Dr. W. Warner Watkins was reported as follows: "Patient was a well preserved woman; apparent age about thirty years. Recent operative wound in the abdomen. Thoracic viscera removed by usual incision; pleura was moderately adherent on each side, but adhesions could be broken with the fingers; lungs and heart were removed intact. Lungs were normal in consistency and appearance, showing no evidence of infarct. Heart was slightly enlarged; but valves were normal and there was no evidence of infarct. Abdomen: Stomach distended with gas, but intestinal tract was normal in appearance. Liver showed considerable variation in color, with patchy reddish areas alternating with pale areas. Spleen was normal in appearance on cut surface. Kidneys were normal. Skull cap was removed, brain being normal in gross appearance throughout. Section of the brain showed no evidence of vascular lesion or other abnormality. Microscopic examination of the medulla was negative for evidence of lesions. Microscopic section of liver shows fatty degeneration, without gross change.

Autopsy did not disclose cause of death which evidently was not due to gross change in tissues of any of the areas examined.

DISCUSSION

After the examination revealed the pelvic abnormalities, she was advised that her abhorrence for the sexual part of married life probably could be overcome through frequent council with her husband and with much patience and endeavor on her part, but that it seemed the part of wisdom first to clean up the pelvis and remove the appen-

dix. She returned to the office the following day with the decision to have the operation. We were much distressed however when she informed us that she was married the night before. We could not help but wonder, especially after the death, what imprint a night of marriage had made upon her mind. No opportunity had been offered for a conference with her husband previous to marriage as had been planned. Could her experiences have caused her to hope for death?

We were again distressed on entering her room the morning of the operation to be asked to witness her signature to a long document which she said could serve as her will.

In thinking over the case, especially the detail of the last few minutes of life, one of us (O.H.B.) had the distinct impression that just as she was relaxing from the first convulsion and respiration appeared to be beginning, another small dose of adrenalin was given and in about the time it takes for adrenalin to be effective she had another convulsion and a cessation of respiration with no more voluntary effort at breathing.

One of us (O.H.B.) has since surmised that she might have been epileptic. She was of the type that what she did not wish to be known would not be told by her.

The second case (seen by O.H.B.) was a nurse who had severe abdominal distress and tetany contractions of her hands and wrists. A careful examination of her abdomen and a study of her history indicated there could be no abdominal condition demanding immediate surgical intervention. She volunteered the information that she had eaten oysters about eleven o'clock the night before and that on all previous occasions when she had eaten them they had caused her distress. The conclusion was reached that she probably was suffering from sensitization phenomena from oysters. It was reasoned that adrenalin would probably afford relief. Not over five minims were given. About the time the adrenalin should manifest its effects she went into a generalized convulsion from which she rallied only after being put in a tub of warm water. Needless to say, she was given no more adrenalin. She gradually recovered from the sensitization effects of the oysters. She was then given an adrenal cortex preparation with most satisfactory results.

INFERENCES

The convulsion in the second case immediately following the administration of adrenalin for sensitization phenomena in which the nervous system was involved, and the impression that the second cessation of respiration in the first case followed promptly after an injection makes us wonder if the death may not be charged to the adrenalin. The suggestion naturally arises that epileptics might well be gvien adrenalin only with extreme caution.

TETANUS FOLLOWING HEMORRHOIDECTOMY

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Due to the kind insistence of my friend and co-worker, Dr. A. L. Gustetter, I present the following case. It is not new, having been written over a year ago, nor are the contents new. I refer to a case which, if not the only one of its kind, is one of the most impressive I have ever had occasion to encounter. This because of the unexpected form in which it presented itself and because of the tragic outcome.

During the first days of August, 1929, Mrs. A. C. came to my office to advise me that she had decided to undergo hemorrhoidectomy which I had suggested to her about two years before. We set August 14th as date of operation, and on that day she was anesthetized, and Dr. Carrada and I performed the hemorrhoidectomy, by Gant's method. We sutured her with No. 2 chromic catgut. The day of the operation she was given two morphine injections, six hours apart, of one eighth grain each, and the following day she had the last injection.

On August 15th the patient commenced taking one tablet of opium and belladona per day. Her temperature the day of operation was a half degree over normal and the next day it was six-tenths degrees, disappearing completely towards evening of the same day.

On the morning of the 17th the patient had an evacuation, hard and dry, with no pain, the last fecal lump being spotted with blood. She was given a sterile bichloride washing and dressed. On the 18th she was feeling perfectly well. On the 19th she had two more evacuations and on that same day she was discharged. But, for some reason or other, the patient decided to stay in the hospital one more day.

On August 20th, about 2 a. m., I was called by phone from the hospital, telling me that the patient had awakened, suffering with dyspnea and that she complained of numbness of the tongue. I thought it was a case of too much opium and ordered that she be given an injection of caffeine and sparteine. At 8 a. m., I was advised that the patient continued the same, with increasing symptoms. I went to see her and found that

it was now a case of tetanus. She was having trismus and marked rigidity of the neck. I questioned the patient and she told me that on going to bed about eight o'clock the night before, she had noticed an indefinite discomfort in her cheeks and neck, which remained until she finally slept. Because of the unusual and unexpected turn of the case, but still holding doubtful hope, I called Doctors Urriolagoitia and Smelker in consultation. They confirmed my diagnosis and in spite of rigid treatment the patient died in one of many paroxysmal spasms, about 43 hours after her first symptoms.

I absolutely discarded the possibility of catgut infection or infection from instruments, as I had myself seen to their sterilization. Investigation of lesions as a source of infection revealed nothing. The only remaining factor as a possible inlet to infection was the surgical wound in the margin of the anus, and as carrier of the infection, the fecal material. Quoting Dr. S. Potter Bartley: "An enormous percentage of infection has followed operations on the intestinal canal. These cases giving the impression that infection is due to the presence of tetanus bacilli in the intestinal contents."

From the above one can see that this was a case of acute tetanus, with two days of incubation and one of evolution, having as entrance the wound on the margin of the anus and as agent of infection the fecal evacuations.

I have taken your time with a common, ordinary case of tetanus simply to recommend a prophylactic injection of antitoxin before a hemorrhoidectomy. It puts us to no effort whatsoever, and enables us to avoid bitter experiences such as mine.

DISCUSSION

DR. V. A. SMELKER (Nogales): An excellent paper from Cook County Hospital last year, gives us some interesting conclusions. At that hospital there has been no improvement in the mortality rate from tetanus in the last 15 years, although in the last 5 years a great deal more antitoxin was administered, and given intraspinally to more patients. (Calvin and Goldberg 99-25-1977). The kind of treatment, whether serum or phenol or magnesium sulphate, or ultra-violet ray, and the form of administration, intraspinally or otherwise, is of a great deal less importance than other factors, such as type of injury, period of incubation, age group, and durability of patient. Taking these later factors into consideration there is little difference in the prognosis of established tetanus now and in the days of Hippocrates.

Our present situation in this question is improved only by the tremendous value of prophylactic inoculation in any case of injury in which tetanus is even remotely likely to develop. Statistics from all the armies in the great war are fairly unanimous on the value of prophylactic administration of tetanus antitoxin. The average mortality in civil life is probably well over 60 per cent. Mortality in the civil war was very materially higher, due to the notoriously high rate from gunshot and powder wounds. In the great war, where, after the first year, practically all wounded received antitoxin, the mortality was not more than 20 per cent among those who developed tetanus after one injection within four days of the injury. Those receiving four or more prophylactic doses and then developing tetanus had a mortality rate of only 7 per cent.

The conclusions I have just quoted to you have a very direct bearing on consideration of the point taken in Dr. Priego's paper. Of course there are strong limitations to the ideal of preventing all incidence of tetanus; we know that tetanus has followed extraction of teeth, ear and nose operation, injuries of the eye, slight scratches, rooster pecks, frost bites, burns, vaccinations, and dozens of other cryptogenetic paths. We know the old idea of catgut infection is not entirely a canard. In 1928, Edinborough University reported nine cases (91-257). Catgut is made from intestinal structures and, conceivably, may be imperfectly sterilized. We also know that, so far, laboratory methods have failed to demonstrate the existence of tetanus germs in human excrement in more than a small percentage of all samples. Nevertheless, at this moment we are concerned with post-operative infection, and it is undoubtedly true that the commonest post-operative development of tetanus is due to fecal contamination. I, therefore, conclude that, wherever possibility of fecal contamination is to be considered, we are justified in further burdening our pre-operative precautions with insistence upon prophylactic antitoxin.

TRAUMA TO KIDNEY

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(Meeting El Paso County Medical Society, May 11, 1931.)

The case I am going to present tonight is one of injury to the kidney from a fall. Injuries of the kidney are best divided into two groups.

I. Subparietal or non-penetrating, in which there is no external evidence of injury, except possibly a slight bruise on the skin.

II. Penetrating injuries, where there is an external wound of entrance over the kidney region or in close proximity to it.

In describing the mechanism of the injury in the subparietal type the force may be exerted either from the front, side or from behind. The kidney may also be injured in a manner which is analogous to that known in cerebral injuries, that is, by contrecoup. This mode of injury is, however, very rare. Injury by muscular action is also rare but can occur as a result of sudden contraction of the diaphragm or of the abdominal muscles; for example, after lifting a heavy weight or in abrupt flexion of the body.

Kuster was the first to offer the hydraulic

theory in order to explain injuries of the kidney, although this explanation cannot be applied to the tearing of the vessels of the renal pedicle or of the ureter. However, it serves at least to clear up the manner in which the injuries to the kidney proper occur. The kidney, when filled with blood and subjected to compression, will tear as does the skull or brain in the point where its elasticity fails to resist the compressing force. The type of injury presented in this case report can be classed as a contusion of the parenchyma. In this form of injury there is hemorrhage into the cortex and medulla without any visible tears of the fibrous capsule or parenchyma.

We shall now take up the clinical picture of kidney injury.

In cases in which the symptoms of primary shock are followed by those of internal hemorrhage, the patient is apt to continue to work or walk around until the anemia from hemorrhage around the kidney compels him to seek medical aid. It must not be forgotten that the pallor, small rapid pulse, etc., in the first hours, may be due to shock as much as to hemorrhage.

Hematuria is present in about ninety per cent of the cases; it usually is observed immediately after the injury but may be delayed if the ureter is blocked by a clot. Pain is rarely absent; in most cases it is very severe and of a colicky nature.

Peritoneal irritation may predominate in the clinical picture, with nausea and vomiting.

In the diagnosis of subparietal kidney injury, the outstanding features in the order of their frequency are hematuria, shock, signs of internal hemorrhage, localized pain, rigidity and gradually increasing swelling over the injured kidney and signs of peritoneal irritation. The diagnosis is definite when carried out with cystoscopy and pyelography.

The chief dangers of kidney injury are death from hemorrhage during the early stages, and from infection in a later period. The treatment may be divided into:

I. Expectant, i.e., conservative.

II. Operative.

Expectant treatment, in the opinion of those who have had a large experience, is the treatment of choice. Operation is indicated, (a) if the hematuria is so severe and persistent as to threaten life; (b) if the signs of internal hemorrhage are increasing rapidly; (c) if chills, fever, etc., and other evidence of infection of a perinephritic accumulation of blood and urine are present.

In regard to the operative treatment, it might be said that it presents a very difficult surgical procedure on account of the inaccessibility of the renal pedicle and on account of the bleeding which immediately commences upon dislodging the clots from the torn surfaces.

The type of treatment we employed in this case was of a very conservative nature, complete and absolute rest in bed, observation of pulse and blood pressure constantly. The convalescence was stormy for the first three days, during which time the patient was showing signs of a peritoneal irritation, due, we presume, to the reflex injury to the kidney, but at the end of ten days he was in a position to leave the hospital and now is back on his job and apparently well as ever.

THE COUNTY HEALTH UNIT

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It has been stated by numerous observers that the county health unit is the most significant advance in the field of public health work within the past few decades. That the county health unit is of comparatively recent development is due to a number of circumstances, especially being dependent upon recent discoveries in the laboratory and in field research work. The discovery of smallpox vaccination by Jenner, in 1796, gave to the world a remedy of sterling worth against the dread scourge of smallpox. The discovery of diphtheria antitoxin gave the physician a weapon which could be employed in the actual treatment of clinical cases of diphtheria, and which later was used to confer a temporary passive immunity in those who were contacts of the disease victim. It is, however, quite recently that the preparation of toxin-antitoxin was announced to the scientific world, to be followed still more recently by the toxoid preparation, thereby placing in the hands of physicians and public health workers generally, a potent weapon for the prevention of diphtheria. The discovery of the New World type of hookworm by Charles Wardell Styles—a research achievement of the first importance—gave the original stimulus to the attack on the hookworm problem in our southern states by concentrated, thorough, and scientific campaigns to free the infected areas from this scourge. The hookworm campaign opened the eyes of the thoughtful to the possibilities of valuable health work which might be accomplished by health workers devoting their entire energies to the various health problems existing in rural sections of our country. The establishment of county health units was the log-

ical sequence or result of a long chain of events, the individual links of which had been forged by physicians, chemists, bacteriologists, zoologists, and keen observers in many allied fields of endeavor.

The county health unit was devised or originated from the conviction that a trained staff of health workers, devoting its full time to the problems within a limited territory, would be capable of accomplishing the maximum of results for the money invested. While the personnel may vary slightly in various counties, the usual county health unit is composed of a physician as health officer, a nurse, who should have public health training, an inspector, and an office clerk. In individual county units, operating under scanty budgets, the sanitary inspector or the nurse is sometimes omitted. Conversely, the experiment is being tried of placing county nurses in the field where no provision has been made for a county health officer on a full-time status. This is an interesting experiment, whose development and results are being watched with great interest, especially here in New Mexico. The latest annual report of the Surgeon General of the Public Health Service states that on January first, 1930, there wwere 505 counties or districts in the United States which were provided with whole-time local health service under the direction of whole-time county or district health officers. There are in the United States approximately twenty-five hundred counties or districts.

The work undertaken by these county health units must be general in nature, making the attempt to cover the entire field of public health activities. Of these activities, that of vital statistics is held, rightly, to be of primary importance. The registration of births and deaths is a necessary project if the health administrator is to have an adequate conception of the magnitude of his problem, and if he is to be informed as to the particular health hazards, whether of communicable disease, infant mortality, occupational hazards or what-not, which are deserving of the greatest effort and attention on the part of the health unit. Coincidentally, the importance of prompt and complete reporting of cases of communicable diseases, with the prompt institution of appropriate measures for the control of their spread, is closely related to the importance of reporting of births and deaths. In the mind of the writer, the reporting of these communicable diseases is yet one of the weakest links in the chain of public health endeavor, since only too frequently the first knowledge of communicable diseases received by the health unit occurs when a death certificate shows a communicable disease has been the cause of death, or when a school child applies to the office for a permit to re-enter school, after having been absent from school for days, or perhaps weeks, due to an attack of whooping cough, measles, or other communicable disease. Better reporting and, consequently, better public health control of these communicable diseases, will result when the general public has been educated to the necessity of reporting communicable diseases, since, in the majority of such unreported cases, investigation shows that no medical assistance has been called. This education of the family must also be extended to the teaching profession, and the individual teacher must be impressed with the necessity of reporting to the health unit when school children are absent on account of communicable disease. Cooperation between those engaged in educational work and those engaged in public health work must be vastly improved before the control of communicable disease approaches an ideal. In all too many instances, cooperation between school authorities and health authorities has not yet reached a satisfactory status.

The establishment of clinic and clinical facilities by a county health unit brings out the necessity of cooperation between the county unit and various other interested groups and individuals. It has been the practice in many of the counties to place before the constituent county medical societies the plans of the county health unit for the establishment of these clinics, and to request the formal support and approval of such county medical societies. In general it has been found that, when the physicians have been taken into our confidence, have had carefully explained the type of work to be undertaken in such clinics, and have been assured that the privilege of receiving medical examinations and advice shall not be extended to those individuals who are well able financially to employ the services of the private practicing physician, the county society has given its stamp of formal approval to the establishment of such clinics and the individual members of the county society have volunteered their services as clinic physicians in many instances. The physician has often found that serivvce at these clinics has brought him an added prestige and has started patients toward his office door.

There exist in every community, larger or smaller groups of interested citizens, usually chiefly composed of women but with

here and there an interested man, which have caught a vision of the great untilled field of medical want and lack of attention suffered by many of the less fortunate inhabitants of the community. Such groups, sooner or later, arrive at the conclusion that certain situations are desperately in need of remedy, and set about devising schemes whereby conditions may be ameliorated, There arise study groups, which investigate not only the actual conditions in their own community, but reach abroad to other communities in the quest of successful solutions of similar problems. With the passage of time, a considerable mass of knowledge is acquired by these groups, some of which, it is true, may be fantastic, weird and impractical, but, in the main, a mass of knowledge which spurs the group on toward definite curative action.

Right here the county health unit will either make an opportunity to become a leader in the movement, with possibly an opportunity to shape the movement into the correct channels, or, on the other hand, by remaining aloof from the movement in its inception and formative period, lose an opportunity to offer advice and guidance, with the ultimate result of being a spectator on the sidewalk when the main parade passes down the street, possibly led by a christian scientist, cultist or faddist in the proud role of drum major. All too many times, the personnel of the county health unit have underrated the social prestige and leadership of small, seemingly insignificant, beginnings, to awaken later to the realization that the impossible has occurred, the movement has made an auspicious start, but that the health unit is not occupying its rightful place as a trusted lieutenant of the commanding officers.

If the health officer or the public health nurse will make the effort to form contacts with the leading sp'rits in these movements —the so-called "key individuals"—it is not a matter of extreme difficulty, as a rule, to align such movements with the work of the county health unit. The main difficulty in so aligning these voluntary health movements with official health work is based upon the woefully inadequate funds under which the average health unit is forced to operate. When the health unit is capable of offering to the voluntary health organization its assistance in the form of skilled, professional service, or in the form of furnishing necessary supplies or office space, or in the form of obtaining the necessary medical service for the consummation of the movement, the health unit usually can direct the actviities and policies of such organization. This cannot be accomplished overnight, nor can it be brought about by the assumption of an overbearing, bulldozing, know-it-all, or holier-than-thou attitude. Aside from the fundamental training in the technic of pub'ic health work, the health officer or public health nurse must be possessed of the patience of a Job, the meekness of a saint, and the pertinacity of a pet sin. The public health worker must be able to submerge himself and his interests in the success of the movement and the benefit of the people of his county. The public health worker must let undeserving leaders reap the praise and acclaim of the people for the successful project, rather than to jeopardize the outcome by insisting upon his meed of praise. The public health worker who enjoys the happy ability to endure galling, nauseating associations, smiling cheerfully and apparently liking it, while in the presence of his colleagues, but who finds relief in quietly driving out on the broad mesa and giving his tortured soul respite by artistically, systematically and emphatically expressing his deep-rooted convictions regarding the general cussedness of humanity and of the especially annoying attributes of certain exceptionally deluded individuals in particular, wi'l frequently surprise his associates with the amount of cooperation which he can obtain in his county or community. But it must be remembered that it will require considerable time for this accomplishment, coupled with a vast amount of quiet, persistent scheming, much character analysis, some flattery, some cajolery, some calm reasoning, and possibly, at times, some rather skillful prevarication, but if the latter is used, it must have the emphasis on the "skillful."

The voluntary health organizations which are working in the fie'd of public health, apparently are so well founded and enjoy so great financial support, that such organizations must be considered as permanent components in the campaign for public health. The recognition of this fact should lead the county health unit to make an attempt at coordination of these various organizations. We believe that cooperation and cordial relations may be attained through the institution of coordnating councils. Such a council in any locality should be composed of the county health officer, the local representative of the Tuberculosis Association, a representative from the public school system, representatives of any civic clubs which may be in existence in the community, as well as representatives from various women's

clubs and groups. These councils should meet at monthly intervals, and each organization engaged in health work should present its problems for the group thought and advice. After thorough discussion, the group should be in a position to recommend the apparent solution of the problem in mind. Perhaps the problem could best be handled by another member organization rather than the organization presenting the problem. If so, the presenting member should gracefully relinquish the problem to the member better fitted to care for the task. Perhaps the problem should be divided, so that two or more of the organizations represented in the coordinating council might solve certain parts of the general problem. We believe that the establishment of such a council, with representative council members reporting back to their individual organizations, will result in a broadening of the interest of the community in these various community health and welfare problems. However, if the success of a community coordinating council is to be assured, it must be remembered that the health department representative must exhibit an example and spirit of doing his full share of the work, of refraining from petty jealousies and antagonisms, and of being willing to occupy an inconspicuous and apparently, at times, relatively unimportant role. He should be chiefly interested in having the problem solved satisfactorily, with few if any thoughts of getting his share of the praise for the accomplishment of the task.

SANITATION IN AUTOMOBILE CAMPS

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The automobile "tourist" camp is here to stay, at least as far as any of us are concerned. However, in the last few years, especially in the Southwest, it has become more than a camp. It is, as some owners advertise, an open-air hotel. In fact, in the better class camps, the accommodations are equal to those found in a medium-priced hotel. Rooms and suites, accommodating from one to six persons, with or without private bath and with or without kitchen facilities, are available at a very reasonable price per person.

A few important items in regard to the sanitation of such camps might be enumerated. They are as follows: (1) Water supply; (2) sewage disposal; (3) milk and food supply; (4) garbage and refuse disposal; (5) cleanliness of quarters and linen.

Under the heading of water supply, it is to be recommended that, wherever possible, a connection be made to the city water supply that is under constant supervision. In many cases, these camps are located along highways many miles from a city. In these cases it is necessary for the owner to develop his own supply from a well or spring. Here the old story about protecting the well or spring from surface drainage is applicable. Where a pump is in use, provision should be made for carrying the waste water away from the well and there should be a tight concrete curb and a slab over the top. Ordinarily our well waters in New Mexico are satisfactory from a bacteriological point of view, and it is only necessary to protect the well water from pollution by surface drainage.

In irrigated sections, shallow wells may contain nothing but seepage water, which is usually highly alkaline and sometimes polluted.

Where springs are used as a source of water, provision should be made to eliminate the possibility of patrons dipping containers into the spring box. This can usually be done by making an outlet of a piece of pipe so that containers can be filled by holding them under the spout, and by covering the spring. Earth should be banked up around the side of the spring so as to carry surface drainage away from the site.

The water carriage sewage system is acknowledged the most sanitary and, again, if it is possible to make a connection to a municipal system, that should be done. Perhaps the next best is the construction of a septic tank with a sub-surface irrigation system. When a system of this type is properly built, it operates very successfully. Plans for such systems are available for distribution by the New Mexico Bureau of Public Health. The faults usually found with such systems are as follows: The septic tank is too small; it has not been cleaned in years; the tile drain is not sufficient in length; or it has been laid in a tight adobe soil with no opportunity for the excess water to leach into the surrounding soil.

The pit toilet makes a very satisfactory method of excreta disposal when it is properly constructed. The main objective is to secure a fly-tight pit. This can be done by making the floor and seat of tongue and groove material, supplying self closing lids to the seats; and by banking earth around the side of the building to make a tight connection between the building and the ground. A number of firms now manufacture a metal floor slab with a metal riser and tight-fitting

seat and cover. This layout is made of a non-corrosive steel and sometimes covered with a special asphalt coating to further protect the metal. The floor and seat can be purchased and the house built to suit the needs.

In a semi-public place, like a camp ground, it is good practice for the owner to apply a small amount of chlorinated lime, usually a tablespoonful, to each seat, daily, during the fly season. The sterilizing property of this amount of lime is negligible, but it makes an excellent fly repellant and deodorant. Many people consider that a pit toilet is unsanitary and, because of their unwillingness to use the seat as a seat, constant measures are necessary to keep the building clean.

In some installations the chemical toilet may be suitable. This type of toilet requires frequent removal of the accumulated material and recharging with a fresh chemical solution. When given the proper care, they are satisfactory, but they should not be allowed as a substitute for the box and can privy without proper disposal of the contents by burying.

Many camp-ground owners maintain a small supply of foods and soft drinks for the convenience of their patrons. Perhaps the most important, from the public health viewpoint, is the milk supply. It is always a good plan to check on the source of milk that is offered for sale. Milk and other perishable foods should be kept under refrigeration.

It is desirable to have garbage cans, with lids, located in convenient proximity to the cabins so that guests will deposit all refuse in them instead of throwing it into a more accessible corner. Removal service should be frequent, daily if possible, so as to eliminate objectionable odors and the attraction of flies. Containers will give longer service if they are cleaned at intervals. In the absence of garbage collection service, combustible refuse can be burned and the other material buried or used for filling in low areas and then covered with a few inches of earth.

It is necessary to clean and service all apartments after the guests have departed. It is necessary to keep a sharp lookout for vermin, as they are frequently left behind by departing guests. Nothing will destroy a camp's reputation more quickly than the statement that the cabins are infested with bed bugs.

Perhaps the most effective weapon in the control of camp grounds is the gossiping ability of the patrons of such facilities. For a distance of several hundred miles on each side of a camp, tourists, as they put up for the night, tell each other that such and such a camp is a nice place and that so and so's cabins are dirty and full of bugs. Such statements go a long way towards keeping the automobile camp in good sanitary condition. As soon as the owner realizes that his trade is falling off because of such gosip he will usually get busy and remedy conditions.

SUMMARY OF MALARIA CONTROL WORK IN DONA ANA COUNTY, NEW MEXICO.

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In order to avoid elaborate and, perhaps, tiresome detail, this is as brief a summary as possible of the malaria control work in Dona Ana County, New Mexico for the past three years.

Malaria, in the irrigated sections of the Southwest, particularly those sections under large irrigation projects and with accompanying necessary drainage systems of the open type, is liable to become a public health problem. Dona Ana County has these conditions and has had malaria as a problem since 1925, necessitating the inauguration of intensive control work. It is now in its fourth year of this work, and it is the purpose of this report to set forth the conditions, details, and results attained up to the close of 1930. Statistical tables will be eliminated as much as possible and used only to show comparisons, when it is more feasible so to do.

The only previous history obtainable of the existence of malaria in this valley, dates from 1862 to 1885. In 1862, when a portion of the Confederate army invaded the valley, inquiry shows that many members were malaria carriers. At this time, the Rio Grande carried much flood water, and, owing to the indefinite river channel, it frequently changed its course or overflowed, causing large areas of land to be submerged for varying periods of time. From this time and up to 1880, there existed quite a number of army posts which were constantly occupied and malaria was quite prevalent amongst the occupants of these posts. After 1885, inquiry points to the abatement of malaria, which might be ascribed to the rapid disappearance of breeding places for the Anopheles mosquito, in conjunction with the previous abandonment of the military posts, thereby removing in mass a large number of carriers.

As far as can be determined, the Anopheles mosquito has always been present in the valley in varying numbers, depending much upon the numbers and kinds of breeding places.

DISCUSSION

The irrigation method of farming has been in vogue for years, and in order to insure a steady and even water supply, the Elephant Butte dam was installed and completed in 1915. With this came an extension of its distributing system of canals and, later, the drainage system became a necessity owing to the water-logged condition of the land, producing ponds and seepages. The irrigation canals, owing to the necessity of their being kept free of obstruction to the water flow, and because of the water running swiftly through them, do not afford breeding places nor harborage for the Anopheles larvae; consequently, they are not involved in any way in the malaria problem. The drainage canals, on the contrary, are the greatest offenders, demanding nine-tenths of the time of the control efforts.

The drainage canals are from 16 feet to 24 feet wide at the water line, with an average depth of 6 feet to the waterlevel, carrying water from 1 foot to 5 feet in depth. The water carriage varies, being heaviest during the height of the crop growing season.

The first series of these canals were dug in 1918, and others have continually been added.

The average width of the valley area involved in the control work is about 4 miles, and canals parallel one another at an interval of about three-fourths of a mile. The canals were never cleaned until 1928, thus aquatic vegetation had all opportunity necessary to attain its maximum growth and distribution. This factor has provided most excellent breeding places and harborage for Anopheles larvae, and as a consequence, the Anopheles mosquitoes greatly increased in numbers. The malaria problem arose as soon as infected material came into the valley. This began in 1923, when the first malaria carriers came in, since which time they have continued to arrive in increasing numbers. The aquatic vegetation involved includes tules, myriophyllum, sedges, duckweed, water cress, and blue and green algae. This vegetation also acted as an impediment to the water flow, which resulted in the raising of the water table and consequent production of ponds. The canals are, at intervals, crossed by flumes and bridges, underneath which ideal resting places for adult mosquitoes are provided. These resting places, in conjunction with certain buildings located near the drains, are being used as observation posts to note the effect of the control measures.

I. Species of Anopheles Involved. The pseudopunctipennis and the maculipennis are the only species of Anopheles so far encountered in the Valley. The habits of the two species differ in this section and under our conditions in the following manner:

The pseudopunctipennis seeks the current in the center of the stream, in clear water and in the sunlight, for its breeding place. Its preference is for animal blood and therefore, its natural infectivity is low. Its resting places are most likely to be away from human habitation. By force of circumstances, i. e., the scarcity or absence of animal blood, its infectivity becomes higher in proportion. Its breeding water must have an alkalinity of pH 7.2, or more.

The maculipennis, in contrast to the pseudopunctipennis, usually breeds near the borders, where there is an impeded flow of water, somewhat stagnating and shaded. Its preferential feeding is human blood, and consequently, its infectivity is high. Its preferred resting place is the human habitation. It requires for its breeding water an alkalinity of pH 7.2 or more. The alkalinity of the water of the drain canals is pH 8.00.

II. Reappearance of Malaria. For a period of 30, or more, years, malaria was unknown in the Valley. The first cases became konwn to this department in 1925, although later inquiry showed a few cases came in in both 1923 and 1924. From 1926 on, the cases increased enormously up to and including 1928, when a reduction took place. The type was, in the main, benign tertian, although in 1927 the upper section of the county showed an almost exclusive malignant tertian. This lasted only during that year. The following year benign tertian invaded the section and since then no malignant tertian has been seen.

The following corrected table gives the cases reported for each year and their classification:

TABLE I.
Case Incidence Each Year

Year	Reported	Recurrent	New Local Infect.	Recurrent of Foreign Inf.	Recurrent of Local Inf.
1923	2	2	.....	2	....
1924	3	3	.....	3	....
1925	7	4	3	1	3
1926	27	20	7	20	....
1927	320	1	319	1	....
1928	935	216	719	122	94
1929	478	176	302	96	80
1930	378	166	212	89	77

TABLE II.
Infection Contracted Previous to Coming to Dona Ana County

Year Infected					
1925	1926	1927	1928	1929	Percentage of all infections
9	37	245	214	8	43.01

TABLE III.
Infection Contracted in Dona Ana County

Year Infected					
1925	1926	1927	1928	1929	Percentage of all infections
	12	233	400	32	56.84

A house to house survey begun in October 1928, and completed in August 1929, gives the potential carrier state for the period; classified as to year infected and the source of infection, a total of 1190 persons were found. This survey revealed other facts which are not made a part of this report.

These results, shown in Tables Nos. 1, 2 and 3, demand explanation to a certain extent. Although the method for obtaining the information is without fault, yet the information is quite unreliable in some respects. In explanation, it can be safely stated that, owing to the attitude of the persons of migratory tendencies in general and as a result of the campaign of eradication—in which it was stressed that the invasion of the disease was the result of the migration to this section of infected persons, whose personal hygenic practices were quite faulty and whose indifference toward preventable diseases is noteworthy—there was exhibited a tendency to claim that infection was encountered locally, when, as a matter of fact, a fair percentage of this class brought the infection with them. This is markedly shown for the year 1927, in Table I, where only one case of foreign origin is shown, when, as a matter of fact, the influx of carriers was quite heavy, as is to a considerable extent reflected in the year 1928, and to a lesser extent in both 1929 and 1930. There also was a notable lapse in the reporting of current cases; therefore, the table is far from being a true record of the total number of cases present at any particular time, and is of value only in showing the trend in the case incipience. We also assume that, owing to the campaign efforts, an increasingly larger proportion of cases were brought to our attention. If this be true, the true downward trend is actually more acute than it appears to be in Table I.

Both the influx and the exodus of people have, during certain seasons of the year, been enormous, depending upon the fluctuating demand for cotton-field workers, so the figures cannot be absolutely correct; yet, in spite of the migratory habits of this class, our fixed population has been considerably augmented since 1923, to the extent of 69+ per cent.

The survey further elicited the following facts: Sixty per cent were self-treated; 56 per cent males and 44 per cent females: 60 per cent white, 40 per cent Spanish-American and 1 per cent Negro.

These cases were housed in 613 domiciles, which are classified as 449 of adobe construction, 92 frame construction, 48 jacals and 24 tents. Of these there were completely screened, 310; partly screened, 83; inadequately screened, 141, and unscreened.

In a series of inquiries amongst drug sellers, it was found that the sale of "chill tonics" increased very materially up to and including 1928; that in 1929, quinine sales took a decided boost and "chill tonic" sales fell off; that in 1930 there was a marked reduction in the sales of both quinine and "chill tonics." If this factor can be used as an indication of the trend of the disease, it decidedly corresponds with the downward case incidence trend in Table No. 1.

A school survey was also made during the fall of 1928 and extended into the spring of 1929. This survey involved only (1) those children having a history of having had an attack of malaria, (2) those having one or more cases in the family, (3) those coming from a state or district where malaria is prevalent. Blood specimens were taken from those coming into any of the above categories. In all, 277 specimens were taken and of these 48 per cent were positive for malaria.

III. Larval and Adult Mosquito Incidence. As a check on the effectiveness of the anti-mosquito campaign, numerous observation posts were established. They were invariably located at the bridges crossing the drainage canals, where periodical searches are made of larvae and for adult mosquitoes. Additional posts for adult mosquito observations are in dwellings and barns in close proximity to drains. Observations for larvae are made at fourteen-day intervals, and those for adult mosquitoes at three to four-week intervals. Prior to 1928, only sporadic observations were made in selected places. In 1928 and since then, more systematic and extended observations became the rule; therefore, comparisons can be made only with that year, even though control measures were in operation and a constant reduction was noticeable toward the end of the summer months. There was a decided reduction from July on, for 1928, in adult mosquitoes at these selected resting places, and this has continued up to the present time. In

1930 these same places rarely harbored a mosquito. This also holds good in all the observation posts. Likewise, this same condition holds for the larval observations. We have, therefore, had an enormous reduction in the Anopheles mosquito population. A very close estimate of the extent of reduction for both larvae and mosquitoes would be 90 per cent. Tables of comparison involve many observation posts and are not included here for fear of elaborate detail.

Anopheles breeding begins rather early in the year, depending to some extent upon the severity or mildness of the weather. We have collected larvae as early as the 15th of February; and adult Anopheles have been encountered during the month of January in sheltered places.

The heaviest breeding months are June, July, August and September, which gives us an unusually long season of work. The extent of breeding has occasionally been augmented during our rainy season by torrential rains, producing large collections of water in low-lying lands, remaining for a sufficient length of time to afford excellent breeding places and harborage for larvae.

CONTROL MEASURES

Our first definite intimation that a malaria problem was imminent in this county, came in 1925. Upon request to the United States Public Health Service, experts were detailed to make a survey of the situation. During 1926, Dr. M. A. Barber, special expert, and Dr. T. B. Hayne, technical assistant, conducted a survey covering a period of two weeks. Again, in 1927, Dr. Barber returned, with Mr. King, technical assistant, for a like period. In 1928, Dr. Barber again returned with Mr. W. H. W. Komp, entomologist, and Mr. King, technical assistant, for a period of two and one-half months, in order to check the effectiveness of the control measures. Dr. Barber is the originator of the Paris green method of mosquito control and his recommendations have been strictly adhered to in our work.

In the fall of 1927, the first appropriation was made for the control work. An amount to cover labor, field equipment and supplies, of $2500, was appropriated. This same amount has been repeated each year since. It does not cover the total cost, since the personnel of the health department devotes considerable of its time to the work. It covers only the labor of the field crew, the cost of material and supplies used in the field.

1. Scope Operations. The operations extend from about 2 miles within the county of Sierra, south in this county to below Chamberino. The last ten miles were added to the territory in 1930, owing to the advent of a new breeding place for the maculipennis mosquito. This territory involves about 350 square miles, 124 miles of canal, consisting of 250 acres of water surface, besides numerous borrow pits and ponds. These latter increase in numbers and size as the irrigation season advances.

There were some notable high spots of infection, situated in those areas where the immigration is heaviest and where the migration is more or less constant. These spots are now quite level with the low trend, in both the number of cases and the breeding of mosquitoes.

2. Methods of Control of Breeding. The methods necessarily confine tthemselves to the use of larvacides and the top-minnow. The larvacides are Paris green in dry dust, used crankcase oil and kerosene mixture, to which Paris green is sometimes added, and Paris green in wet sand, depending upon the condition.

Gambusia Affinis and Gambusia Petruelis (top-minnows) are used to stock the drainage canals.

The working crew consists of a foreman and two laborers. The equipment consists of one Ford "pick-up" truck, with oil barrels and oil cans, metal knapsacks for mixing and carrying the Paris green mixture and heavy metal hand scoops for its distribution, and other small equipment.

The Paris green mixture is distributed by hand, using the wind direction as a help in its distribution. Blowers were tried but were found cumbersome and impracticable in the brush encountered on the canal banks.

An entire tour of the area is made every two weeks and all canals and water collections are treated. During the first year of operations, the work was begun on April first and extended to October first. At this time it was found that there were many adult mosquitoes in the air and the breeding of larvae had progressed considerably. Naturally, this gave the breeding a notable start and it was necessary to combat the breeding operations of a large number of early mosquitoes. In the following year, and since, operations are begun on March first in order to forestall the boost in breeding previously experienced. This has had a notable effect, since we immediately overcome the breeding activity effects of the mosquitoes which have been hibernating through the winter months.

To enable one to know at all times the extent of progress and the failures, if any, one must test for presence of larvae at stated

intervals and at numerous observation posts. This is done routinely by the foreman of the field crew, who has been instructed in the manner of doing it and in the recognition of the Anopheles larvae. These collections are brought to headquarters where they are classified, counted, and recorded against the post producing them. In this way an accurate check is kept of the progress being made and indicates quite correctly points missed in treatment or inadequately treated. The larval collections are bred out for specie determinations and for experimental research purposes. Re-checking is done by the health officer, and searches for and collection of adult mosquitoes are also made by him. Accurate records are also kept of these.

The effectiveness of top-minnows depends upon the extent of the horizontal vegetation in the body of the water. Where there is much of this, minnows have considerable limitation in their effectiveness, many larvae breeding out although the water may have an abundance of minnows. Where the vegetation is perpendicular they do very effective work. Since the canals contain both kinds of vegetation, we do get a fair percentage of effectiveness from having them.

Top-minnows increase in numbers very rapidly where planted, if sufficient protection is afforded the young. They are viviparous, and breed about every six weeks, beginning in the month of April, one female delivering from ten to eighty young each time. They are cannibalistic.

3. Cleaning of Drain Canals. Owing to the high cost of dredging these canals, which must be done with a drag-line dredge, doing so for the elimination of breeding places of Anopheles is impracticable. It is only done for the purpose of overcoming an impeded flow of the waters and for restoring full drainage effectiveness. It is planned to do this dredging at four-year periods. Even were it attempted for the elimination of Anopheles harborage, observation has shown that it is effective only for a sixty-day period at most, and the necessary method followed still leaves a fringe of vegetation on one border of the water, which provides excellent harborage for the maculipennis mosquito, and still calls for continuance of treatment. It does, though, affect the breeding of the pseudopunctipennis for a longer preiod of time, until center-stream vegetation again appears.

Various chemicals have been tried in an attempt to destroy the vegetation; but their practical applicability over a large area is still in the experimental stage.

4. Screening. Screening is the vogue. One is concerned mostly in urging the repair of damaged screens and the extension of the screening to those inadequately done. Barber and King give the following table in an article published in Public Health Reports of March, 1929, entitled "Some Notes on the Limitations of Screens in the Prevention of Malaria," which is the result of a survey made of a certain section of this county. He concludes that we enjoy a high percentage of completely screened houses.

TABLE IV.

Amount and Character of the Screens in a Sample Group of Houses in Dona Ana County, N. M.

Type of Screening	Number of Houses	Per cent of total Number
I. Veranda, doors and windows screened	97	13.0
II. Veranda not screened:		
1. Completely screened doors and windows to the top	430	57.6
2. Completely screened except upper half windows not screened	121	16.2
3. Lacking screened doors, windows wholly or partially screened	49	6.5
4. Only one room screened, presumably sleeping room	5	.7
III. Wholly unscreened	45	6.0
	747	100.0

Since the maculipennis mosquito is the greatest offender in this area and since it usually seeks for resting those places inhabited by man, house transmissions of the disease are common; therefore, all persons are personally instructed to search for and destroy all mosquitoes found in their homes.

Our difficulty has been in inducing people to properly utilize the screens that they are equipped with. Owing to the high atmospheric temperature prevalent here during the summer, the poorer class of persons are inclined to sit or sleep out of doors beginning at sunset, or to prop open their screen doors. It is difficult to persuade them to change theis habits and to impress them with the necessity for doing so.

5. Treatment with Quinine and Plasmochin. We are advocating the "standard treatment" adopted by the United States Public Health Service. Various other systems of quinine administration are in vogue and have their strong advocates; but the difficulty with all of them is that the patient does not keep it up long enough to insure a sterilization of the blood.

Plasmochin and plasmochin compound (with quinine) has proved a valuable substitute for those who are "quinine-intolerant," "quinine-resistant" or pregnant. This Department has used this synthetic preparation for the past three years for the purpose

of making observations on its effectiveness. The drug can now be purchased on the open market. Its efect on the patient is, occasionally, rather tricky, and therefore its administration must be carefully observed throughout its use. Its further use during the administration of quinine is for the purpose of rendering the malaria blood non-infective to mosquitoes, since a malaria infected blood can be infective to mosquitoes even though it be loaded with quinine. Barber, Komp and Newman, in a series of experiments, ("The Effect of Small Doses of Plasmochin on the Viability of Gametocytes of Malaria as Measured by Mosquito Infection Experiments," Public Health Reports, June 14, 1929), conducted two years ago in Central America, found that, if a small dose of plasmochin is administered to the quinine-treated person every third day, his blood becomes non-infective. The importance of this finding in both treatment and control work is plainly evident.

An important feature in our control work has been the discouragement of the use of the so-called "chill tonics". They contain only a small dose of quinine, not sufficient to produce sterilization excepting in the very young, but sufficient to hold in check the most disagreeable symptoms. The majority of the people infected are of the class who rather incline toward self-treatment, and who have been in the habit of using the so-called "chill tonics" for every conceivable ailment. It has been difficult to induce them to purchase quinine instead of the "tonics."

6. Education. The necessity for educating the people is paramount; should they remain indifferent, as most of them are inclined to be, the conditions would resemble those of the southern states, where malaria has been and is endemic. This apathy toward the disease is a great factor in its perpetuation. When a people reverts to tippling "chill tonic" to keep itself fairly comfortable and fails to concern itself with positive cure, or takes no means to prevent transmission, one can expect either an increase or, at best, a high level of incidence of malaria.

The greater portion of the educational work done now is by personal contact. During the inception of the campaign of eradication, use was made of press articles, talks before Farm Bureau locals, school classroom talks, the showing of films, the distribution of malaria literature, personal contacts with physicians during which, also, prompt reporting of cases was urged. At home visits a mimeographed sheet of instruction as to treatment and an explanation of the cause and the method of prevention, is left with the householder.

It is also urged that a blood examination be obtained and that this be repeated after finishing a full course of quinine treatment. In this respect this department has examined about 4500 specimens since the beginning of the active campaign, either for verification of diagnosis or for differential diagnosis.

CONCLUSION

Malaria is endemic in Dona Ana County, New Mexico. Under the physical conditions present, the effectiveness of control measures depends upon the use of a combination of methods, which was determined upon by exhaustive surveys, experiments and observations.

The use of a combination of methods, such as dust diluted Paris green, oil mixtures, oil and Paris green mixtures, Paris green and wet sand mixtures, the propagation and distribution of top-minnows, the instruction of the inhabitants in the habits of the offending species of mosquitoes and the necessity for proper and adequate treatment, and the advisability of blood examinations, has resulted to a comparatively high degree in reducting the Anopheles mosquito production, the number of local transmissions and the total number of cases of malaria.

The actual reduction in transmissions is far greater than is shown by the figures presented, if we consider the probability rate, including the fixed increase in population, had no control measures been instituted.

It is expected that the migration of carriers will continue and that it is impossible completely to eradicate the Anopheles mosquito or to eliminate the ideal breeding conditions until some feasible and economical method of the destruction of the aquatic vegetation is discovered, and that, in consequence, the control measures must needs be continued indefinitely.

The control costs are extremely low considering the large area under treatment.

MASTOIDITIS
(Case Report with Discussions.)

W. A. Schwartz, M.D.
Phoenix, Arizona.

(Presented at Staff Meeting of Good Samaritan Hospital, Phoenix, April 29, 1931.)

Boy, age 10, admitted to the hospital on February 5, 1931. A week before entering the hospital was hit on the end of the nose and on the upper lip by a hard piece of dirt thrown by another boy. Both the nose and upper lip were swollen. The swelling increased until both nostrils were completely closed with an elevation of temperature, pain and headache.

Past History: Mumps at five years. Measles at six years. For years while in the East had frequent colds during the winter, continuous nasal drainage and coughs.

Examination: Pulse 112. Temperature 101.2 degrees. Leukocytosis, 16,000; 76 polymorphonuclear. Swelling of the upper lip and entire nose, especially the tip. The septum was bulging on either side closing the nostrils completely.

The septum was incised under local anesthesia and about an ounce of pus escaped. The abscess drained for about eight days. During this time the swelling had gradually subsided, the temperature ranging from 99 to 101 degrees. Dr. Kennedy reported an infection in the chest which might be responsible for the fever.

Five days after entering the hospital, the temperature was 102.6, and he complained of pain in the left ear. Examination showed both canals filled with large masses of hard cerumen, and attempt at removal of these masses was not successful. The following day after long manipulation and washing, the cerumen was finally gotten out. A small abount of blood showed in the left ear coming from the canal wall. The drum was congested and bulging. A small incision was made in the drum. The following day there was a large amount of sero-sanguinous drainage. That day the temperature was 103. From this time the temperature gradually subsided, and he left the hospital on the 18th. He still had very profuse drainage from the left ear. No tenderness or swelling over the mastoid. No pain.

Again admitted to the hospital February 26, 1931, on the recommendation of Dr. Kennedy. Temperature 101.2. Pulse 104. Respiration 24. Leukocytosis 22,800. Complained of continuous dull pain in left ear. The pain was not severe. There were no chills. No vomiting. Profuse drainage from the left ear. Sagging of the posterior canal wall. Swelling over the entire mastoid area extending back of the mastoid and down the neck. Tenderness over the entire area. More marked over the antra and tip.

X-ray examination showed on the right side eburnation around the region of the antrum and cell development being more nearly normal in the posterior portion of the process. On the left side there is no normal cell structure visible but the density is not so great as it is on the right side. General examination was essentially negative. The reflexes were slightly exaggerated. Otherwise there were no neurological findings.

A consultation was requested, and the patient was seen by Dr. McLoone and Dr. Bailey. Both recommended that the boy be operated immediately.ly.

Operation showed much sclerosis. Pus was found under pressure. The trabeculae had broken down, and inflammatory tissue present. He continued to have intermitten temperature ranging from normal to 101 until March 7th.

The drainage gradually subsided. The hearing at this time is normal. No drainage from the middle ear. No perforation.

COMMENT

Although this is an acute infection of the mastoid, the sclerosis shows that there has been an inflammation at some previous time. Some congestion of the mastoid is probably present in every case of otitis media. Middle ear infections are common while a small percentage develop symptoms that can be recognized as mastoiditis. The symptoms of mastoiditis in this case were definite. Often they are not so definite, and an operation may be delayed too long. The abscess of the septum was direct result of the trauma. Probably a hemorrhage beneath the membrane followed by an infection. Meningitis is a possible complication in abscess of the septum.

By Dr. John J. McLoone, Phoenix.

I saw this patient in consultation on the 28th day of February, 1931. My observations at that time were as follows:

Left ear canal was filled with pus. After removal of same, a small perforation was disclosed through which came some pulsating discharge. Mastoid process was equisitely tender, especially over the antrum and the tip. Pain became more intense as pressure was made over the posterior portion of mastoid. Palpation revealed a marked periostitis over the entire mastoid area. Considerable edema of the structures posterior to the process was found. This edema extended downward towards the neck area. There was a sagging of the posterior wall. There was, at that time, manifestly present quite an extensive involvement of the mastoid bone. I advised immediate surgical intervention, as I felt grave sequelae might follow if operation were too long delayed.

In reviewing this case and noting some of the earlier history, we note that there was a mucopurulent discharge from both nostrils with a temperature of 101.4 and a white count of 22,800, polys 76. Patient was coughing on admission to hospital. The temperature continued above normal. On the 10th, 11th and 12th of February, which would be the 6th, 7th and 8th days in the hospital, temperature is noted as 102 or above. On the 13th, an x-ray was taken of the chest suggesting a resolving pneumonic process of the lung. A serosanguineous discharge appeared, coming from the left ear on the 12th and by the 15th had become quite profuse. Etiological factors in this case were undoubtedly either a nasal infection or pneumonic process or possibly both. A culture taken at this time would have, in all probability, revealed a streptococcus, a pneumococcus or perhaps the presence of both of these organisms.

The bacteriological findings of purulent inflammation of the middle ear with mastoid involvement are most important in deciding whether it will be necessary to open the mastoid cells. The streptococcus, especially when occurring in influenza cases, is most insidious. When a hemolytic streptococcus infection of the mastoid cells is demonstrated, no prolonged abortive treatment should be maintained. The finding of this organism in the middle ear discharge, together with a daily rise in temperature which does not subside after a very short time, is sufficient indication to perform the simple mastoid operation. I have operated in cases of this type in which there was practically no pain and very little tenderness, and found the destruction of the mastoid cells altogether out of proportion to the symptoms present. The pneumococcus, especially when accompanied by the micrococcus catarrhalis, will in most cases result in a well defined mastoiditis. The staphylococcus produces a milder infection. However, it frequently happens, especially after the otitis media is well established, that we are unable to demonstrate the true offending organism. Staphylococcus alone may show in the aural discharge, while the more virulent organisms as the streptococcus or pneumococcus, remain in the mastoid antrum or cells.

A sparsely cellular type of mastoid as revealed by the x-ray does, I believe, explain a lack of expression of external symptomatology earlier in the disease. In studying the x-ray appearances of mastoids, we find that various films may show every possible gradation, ranging from the completely acellular mastoid to the most widespread pneumatization. The mastoid with few or no pneumatic cells represents the greatest contrast to the pneumatic type.

In this case, a very destructive process had evidently been going on without manifesting itself externally earlier in the disease on account of a sclerotic and dense mastoid bone.

These types are termed diploetic, infantile, and acellular or sclerosed mastoids, or those with a total arrest of pneumatization. Hence the importance of pre-operatively determining the mastoid structure. The otologist should, by x-ray, be able to visualize the anatomic relations fully. He will know that the structure of such a mastoid consists of an antrum deeply placed in dense bone; that there may be only a very thin plate of bone between antrum and either the middle or posterior fossa or the sinus, or all three combined. A most virulent infection in an antrum so situated is capable of producing but few if any of the typical signs and symptoms of mastoiditis, though all the more likely to give rise to intracranial complications. An operation in this class of mastoid will be indicated on far less clinical evidence than in the pneumatized type of mastoid.

This is in contrast to a distinctly cellular mastoid, in which external signs, such as edema and postauricular tenderness, manifest themselves early. The operative findings in this case disclosed that neither dura nor sinus were exposed, which would indicate that surgery was undertaken at an opportune time.

NEPHRECTOMY FOR TUBERCULOSIS OF KIDNEY. (Case Report.)

Charles N. Ploussard, M.D., F.A.C.S.
Phoenix, Ariz.

(Discussed before Staff Meeting of Good Samaritan Hospital, May 25, 1931).

White female, age 30, entered hospital to improve physical condition for nephrectomy, a diagnosis of kidney tumor having been made by me previous to her admission.

Past history: ordinary diseases of childhood. Typhoid at age of 14. Married at age of 14. Marriage later annulled. Gonorrheal and syphilitic infection shortly after marriage; extensive treatment. Became pregnant and had a cesarean section during first year of married life. Supravaginal hysterectomy nine years ago. Tonsillectomy three times. Flu in 1928; several times since. Was at the Mayo Clinic in 1928, diagnosis gastroptosis and neurasthenia. At Johns Hopkins in 1929, diagnosis gastric stasis, spastic colon, hypotension, oral sepsis, undernutrition, pharyngitis, secondary anemia, spinal scoliosis and an affective nervous disorder with depression, fears, nervousness, irritability, headaches and abnormal sensations in the abdomen. At Touro Infirmary in New Orleans for eight months, diagnosis of secondary aremia, chronic focal infection. Was sent to Arizona for a change of climate in a very poor condition.

Physical examination: Patient is very anemic, very thin, high strung, adult white female, complaining of shortness of breath, vomiting large amounts of food, temperature ranges from 99 to 103 daily. Heart negative, x-ray shows old healed tuberculosis. Abdomen, tenderness throughout. Mass size of grapefruit in lower left kidney region. Tenderness over gall bladder area. Old scar between symphasis and umbilicus from previous operation. Extremities negative; reflexes normal.

Laboratory: Blood and spinal fluid Wassermanns negative. Test for typhoid and malta fever negative. Sinuses negative. Red count 3,000,000; white count 10,750; polys 85; monos 15; coagulation time 4 minutes and 30 seconds. Blood typing group 4. Urine; bladder specimen, albumin positive, pus and blood present. Right ureteral specimen, no pus, no bacteria. Left ureteral specimen, pus, blood but no bacteria found. Phthalein test, right appeared in three minutes; 40 per cent first hour. Left, appeared in eight minutes, 3 per cent first hour. Ewald test meal, free HCl 26; total acidity 56; trace of occult blood. N.P.N. 23 mgm. per 100 c.c. of blood. Icteric index 3.

X-ray: G.I.G.B. Chronic gall bladder disease. Barium enema at junction of sigmoid and descending colon an area of irregular contour and intolerance to contents apparently due more to pressure from without than to lesions of colon wall. Pyelogram: 60 c.c. sodium iodide in left kidney; left kidney shadow large. Kidney pelvis elongated, narrow and lower calyces not filled. Diffuse narrowing of upper one-third of ureter, probable new growth of kidney.

Operation Aug. 20, under sodium amytal-ether anesthesia, patient receiving about ten grains of sodium amytal before going to sleep. Incision about eight inches long extending from posterior to twelfth rib obliquely down over kidney area to mid clavicular line at about level of umbilicus. Kidney exposed, delivered with difficulty due to adhesions around kidney, particularly around lower pole. As much of the peri-renal fat was removed with kidney as was possible. Vessels doubly ligated, all bleeding controlled, kidney was removed. It was necessary to leave a small area of induration behind due to the fact that lower pole of kidney was densely adherent to posterior abdominal wall and probably to some abdominal viscera, most likely descending colon. This kidney tumor has appearance macroscopically of hypernephroma. Cigarette drain lower part of wound. Wound closed in layers. Patient given 500 c.c. citrated blood in operating room. Also 1000 c.c. normal saline into breast. Condition after operation poor. Convalescence very stormy and recovery was doubtful for three days after operation when she began to improve and was removed to her home in an ambulance 20 days after operation. Wound healed in three weeks. Patients convalescence was very slow but gradual.

Pathological Report: Kidney, gross section shows a fairly well defined rounded mass 1½ by 2 inches in diameter in the lower pole of the kidney replacing the lower calyces and encroaching upon the cortex. The cut surface is slightly granular with grayish yellowish nodules. Sections show inflammatory process with infiltration into the cortex and extending to and involving the capsule. Numerous rounded areas show central caseation necrosis and slight fibrous deposit at the margin and with occasional giant cell form. We would consider the changes as representing tuberculous involvement.

At time of admittance to Hospital she weighed 64 pounds. Stated she weighed less than that a few weeks previous. When in my office a few weeks ago she weighed 116 pounds. Her maximum weight was 126 pounds. She returned to her home in Georgia and writes that she was feeling fairly well and continues to improve slowly.

CORNEAL ULCER
(Case Report with Discussions.)

MAYO ROBB, M.D.,
Phoenix, Arizona

(Presented to Staff Meeting of Good Samaritan Hospital, April 29, 1931.)

This patient, a male, age 23, from Williams, Arizona, referred by Dr. McIntyre, having a foreign body strike his right eye while riding in an automobile. Two days later he had the sensation of a foreign body in the eye and several of his friends attempted to remove the foreign body from the eye but with no success. Then he consulted his local physician who was unable to find a foreign body.

When I examined the right eye a foul ulcer about the size of a match head was on the cornea just below the summit, marked ciliary injection, cloudy cornea and swelling of the upper lid. I advised hospitalization but he refused. He was prescribed butyn for the pain locally, two per cent atropine sulphate, cauterization of the ulcer with iodine petrogen, an eye wash, hot compresses, ten per cent neosilvol, a bandage, and aspirin internally. The ulcer became much worse and he was sent to Good Samaritan Hospital, March 20, 1930. Here he was put to bed and Dr. Bailey saw the patient in consultation. Locally he was given butyn, one per cent, mercurochome two per cent, atrophine sulphate, boric acid wash, the infra red light, and morphine hypodermically for the pain. The ulcer spread to the temporal side in spite of the treatment and three days later he was given six c.c. of milk in the gluteal muscle. The eye seemed silghtly better the next day. He was given the second dose of nine c.c. two days later, but there was no change in the eye.

The present antiseptics that were used in the eye were discontinued, and cauterization of the spreading ulcer with two and one-half per cent iodine, and conjunctival sac filled with calomel powder. This was done daily for a few days with no improvement. Ten days after entering, the ulcer had spread over about one-third of the surface of the cornea. The ulcer was now cauterized with the actual cautery under cocaine hydrochloride anesthesia which gave the patient slight relief and stopped the spreading of the ulcer on the nasal side. Dr. Gram saw the patient and advised five per cent dionin to be used locally which was done and another cauterization with the electric cautery over the upper and lateral side of the ulcer. After the second cauterization the ulcer ceased spreading and the eye began to improve. No hypopyon was present at any time.

He left the hospital on April 14, 1930 and the dionin was prescribed t.i.d. Three weeks later he came to the office and at that time the scar was much thinner and the vision in the eye was 20/40-3.

COMMENT

The cornea, like the rest of the surface of the body, is exposed to external injuries. It has a most delicate epithelium which is quite soft and, being seated on the smooth Bowman's membrane, is easily stripped off. So epithelial lesions of the cornea are quite frequent. Trauma may be responsible for many different kinds of corneal ulcers but I am dicussing only the so-called simple traumatic ulcer. Ulcers of the cornea are among the most frequent affections of the eyes and special significance is attached to them because the opacities that they leave often impair the vision. They are found much oftener in adults and especially in elderly people. In the later years of life the cornea is not so well nourished and is more liable to disintegrate than in youth. Traumatic ulcers may originate in a superficial defect caused by a wound, abrasion, burn or chemical corrosion, or the extrusion of a foreign body. They may also be caused by the cumulative effect of repeated slight irritations, for example, those due to ingrowing lashes. As a rule the body that causes cornea is caused by the bacteria present in the conjuntival sac, the most common organisms being the pneumococcus which is the cause of ulcus serpens,streptococci, staphylococci, Koch-Weeks bacillus and Morax-Exenfeld.

As a rule most traumatic ulcers run a benign course but a few are very serious. If the stage of infiltration fails to terminate in absorption and there is destruction of the overlying corneal tissue an ulcer results. Surrounding the area of necrotic tissue is a clear space and beyond this is a ring of infiltrating leukocytes which come from the vessels at the edge of the cornea. In favorable cases this necrotic tissue is thrown off, the surrounding cornea clears, the ulcer is covered by proliferation of the epithelium and the loss of substance is replaced by connective tissue derived from the fixed cells of the cornea. When the process is progressive it may spread over a large surface of the cornea or penetrate the deep layers of the cornea or both. If the ulceration is not checked the cornea is perforated and inclusion of the iris may result in staphyloma. If the iris does not prolapse the perforation may be closed with a tissue produced by proliferation of the posterior lining endothelium. Bowman's and Descemet's membranes are never reproduced. Panophthalmitis is often the end result of a very foul ulcer.

In view of the very varying course run by traumatic ulcers of the cornea, the physician who is called to a patient with this disease should be able to predict to the patient or his family to what extent the sight will suffer permanent impairment, in order that such impairment may not be afterwards charged against the treatment prescribed. The prognosis for vision depends upon the extent and location of the opacity which is the result of the ulcer.

Traumatic ulcers of the cornea, like most other diseases of the human race, do not yield to a set rule of treatment but certain principles are common to all. In a majority of ulcers the removal of any foreign body, atropin, boric acid wash, mercurochrome and dark glasses usually are sufficient to accomplish a cure. If the ulcer is foul or progressive, more energetic measures must be

employed. The remedies that are found to be very useful include holocane (one per cent) for the pain, iodine of petrogen (5 per cent) applied directly to the ulcer, boric acid wash, moist hot compresses, and a protective dressing to the eye. When a conjunctivitis is associated with the corneal ulceration the lids are brushed daily with a one per cent silver nitrate solution followed by a saline solution. Some patients obtain more relief from the infrared light than moist heat. In many ulcers dionin (2 to 10 per cent) gives excellent results; also iodoform is a useful drug in this disease. If the pneumococcus is the cause of the ulcer ethylhydrocuprein has been reported by some ophthalmologists to give brilliant results. I have always found it a disappointment. It must be a freshly prepared solution and this may account for its many failures. Text books on ophthalmology all mention the use of eserine instead of atropin for peripheral ulcers, but I have yet to see any physician use this drug for corneal ulceration. Foreign protein given intravenously or subcutaneously seems to have a favorable effect on many ulcers. The remedies utilized are boiled milk 1 to 5 c.c. subcutaneously given daily for three days. Anti-diphtheritic serum and typhoid vaccine are also used, as well as many other proteins. No one seems to have any advantage over the others. If all this medicinal treatment fails and the ulcer still spreads, cauterization with the thermophore, phenol and alcohol or the actual cautery is usually resorted to. Of all the agents used in foul corneal ulcers sterilization of the floor and edges of the ulcer with the actual cautery gives the most satisfactory results. This usually stops the spread of the ulcer and this relieves the pain. If a hypopyon is present a paracentesis of the cornea may be performed. It will also cause the ulcer to cease spreading. Any focal infection should be taken care of, for example, infected teeth, tonsils, nasal sinuses and gall bladder, as they often retard the healing of the ulcer.

The diet should be nutritious and plenty of fresh air supplied. Codein or morphine may be given for the severe pain. The bowels should be watched carefully. Calomel and salines are given whenever necessary. The circulation must be taken care of, especially in elderly people.

Discussion by Dr. Harley Yandell, Phoenix.

This fellow from Williams must have had a pretty tough time of it, as well as Dr.Robb and his associates, but this is a thing that so often happens. Somebody gets something in his eye, and waits two or three days and then has the neighbors try to get it out; if they fail, as they usually do, the family doctor is called upon. He usually finds that, if the neighbors did not get the foreign body out, they at least did a good job of infecting the eye, and so he "passes the buck" to the eye specialist; this is, of course, to be highly commended, because, the Lord knows we who study the eye a life-time, know little enough about it.

Dr. Robb told us how hetook care of this particular sort of an ulcer, and the end results in the case were, in all probability, all that could be expected in such a desperate condition.

I feel that I would almost be considered guilty of sacrilege, should I try to rehash in this discussion what Dr. Robb had to say about the histology of the cornea, the pathological conditions and the detailed technic in handling a traumatic corneal ulcer, but I hasten to offer just a few remarks which must be considered friendly, or as constructive criticism, or possibly a still better term would be just some suggestions. It seems that, in this case, you were dealing with a pneumococcus infection, and if this were true, you should have lost no time by instilling butyn, neo-silvol and mercurochrome which are highly incompatible chemically, but should in my opinion, have resorted immediately to the actual cautery, using some anesthetic other than cocain, which often does actual harm to cornea with ulcer.

I was asked to discuss traumatic corneal ulcers, and was also instructed to make an attempt to help the general physician who treats ulcers of the cornea, or as has been termed—"sores on the eye ball." As regards the latter, I fear I have been given a difficult task; however, I would like to be able to enlighten any one who undertakes to cure a corneal ulcer, a condition which may readily cause blindness, a condition which therefore must truly be placed in the category where all things are considered from an economical standpoint. The world is in darkness to thousands caused by corneal infection.

Due to the suddenness of its onset, the rapidity of its ravages destroying the vision, happiness, and hope, or seriously crippling the wage-earner and bread-winner of the home, I say "hands off" unless you are familiar with the many things that may happen to an eye which has a corneal ulcer. I would in all kindness, say to the general physician: "Would you assume the responsibility of treating a corneal ulcer in your own child's eye, or would you quickly refer same to the specialist? Will you go ahead and treat a corneal ulcer in any one, and consequently be in doubt as to its progress, until finally you see there is no chance, and then kindly refer the case to the eye specialist?"

Happier would I be tonight as I stand here before you during the few minutes allowed me, if I could tell you all how to cure corneal ulcers, but I fear that should I talk to you until 3 a.m. and as fast as Will Rogers chews gum, that it would all be in vain, and you would be about where the sailor was as he just crossed the bay, with the mountainous waves rolling and tossing before him. However, since I have been selected as the one to offer to the general physician this friendly advice tonight, I am going to give you a technic which, if you will always follow as long as you practice medicine, you will have me to thank, for you will get more real personal happiness, will cure more corneal ulcers and your patients will always be grateful to you for your manly act.

Technic: When you find out, or possibly a little while before you find out, that your patient has a corneal ulcer, kindly refer him to the ophthalmologist who has most likely spent as much time in studying corneal ulcers as you have in studying about everything, even golf and contract bridge.

A CASE OF PROSTATE OBSTRUCTION

DAVID M. DAVIS, M.D.,
Phoenix, Ariz.

(Presented at Staff Meeting of Good Samaritan Hospital, May 25, 1931.)

The case I wish to report is that of Mr. J. W. G., age 68, who was first seen on February 5, 1931. His health had been good until the onset of symptoms of urinary obstruction three or four years previously. These symptoms of frequency and difficulty increased until one year previous, at which time there was an attack of complete retention. He was catheterized several times and was quite ill for two or three weeks but finally urination was reestablished. He continued to void frequently and with difficulty until about a week previous to admission, when there was another attack with complete retention. He was catheterized several times and was then seen by Dr. Tucker, who inserted a retention catheter which functioned well.

Examination on Febrduary 5 showed the prostate only moderately enlarged. The lobes were symmetrical, smooth and elastic although firmer than normal. The patient was comfortable, but had lost weight, looked drawn and anxious, and was restless, depressed, and querulous. At this time the urine showed a moderate infection and a phenolusphonphthalein test showed no excretion in the first half-hour and only 5 per cent in the second half-hour. At his request the catheter was removed but he was unable to void and it had to be replaced.

Cystoscopic examination showed a bladder capacity of 350 c. c. with marked trabeculation and a moderate hypertrophy of the trigone. Study of the vesical orifice showed three clefts, and a picture indicating good sized lateral enlargements projecting intravesically, and a moderate sized median lobe. At this time the patient's condition appeared reasonably satisfactory in all respects except for the very poor excretion of phenolsulphonphthalein. This, however, contraindicated operation and the catheter drainage was continued. Slow improvement occurred. On Feb. 23 a blood N.P.N. was made, showing a normal figure of 30. It is unfortunate that other determinations had not been made previously but the number of tests was held down by economic considerations, and I considered the phenolsulphonphthalein test more important. The lantern slides show there was a gradual improvement in the phenolsulphonphthalein excretion; it was hoped that 40 per cent in the first half-hour could be reached, but it became evident on March 11 that 30 per cent in the first half-hour was the maximum obtainable.

At this time the condition of the patient had undergone a marked change and it was now easy to see in retrospect how much better he was than at the time of admission, even though his condition then appeared to be reasonably good. He had actually gained a little weight, and instead of being depressed and irritable, was now calm, confident, and cooperative. His appetite was excellent and his digestion and bowel action normal.

Perineal prostatectomy was performed under caudal anesthesia, March 16. The postoperative course was rapid and uneventful. He voided through the urethra 60 hours after the operation. On the third day he had complete control of his urine. He was out of bed on the fourth day and began to walk on the eighth day. The perineal fistula closed on the tenth day and on the twelfth day he left the hospital feeling very well.

He was seen again six weeks after the operation at which time the bladder capacity was 500 c.c. and the urinary function normal in all particulars. In addition his sexual powers were unimpaired.

COMMENTS

To have operated upon this patient at the time of admission to the hospital would have led almost surely to disaster. The non-protein nitrogen of the blood is not a safe index as it returns very rapidly to normal upon the institution of artificial drainage and long before the kidneys have fully recovered from the damage caused by obstruction and infection. The phenolsulphonphthalein is a more valuable index and in my opinion the best. The excretion should be studied in half-hour periods as the rate and rapidity of excretion are of great significance and more important than the total figures for two hours. If the figure for the first half-hour can be brought to normal, we know that the dye is not only being put out in the proper concentration but that there is no delay in its first appearance in the urine. The time of operation is determined not by the attainment of any specific figure but by the reaching of a constant and stable rate of excretion. Reference to the curve shows that this constant level was reached at 30 per cent in the first half-hour in this case and the postoperative history shows that the time was properly selected and that the weeks spent in preliminary drainage were well worth while.

Another point of importance is that this patient should have received surgical treatment at the time of his first complete retention. He would then have been spared the extensive damage to his kidneys which resulted from an additional year of chronic obstruction and a second attack of complete retention.

CASE REPORT (Toxic Goiter)

LESLIE R. KOBER, M.D.,
Phoenix, Arizona

(Discussed at Staff Meeting of Good Samaritan Hospital, June 22, 1931.)

A woman aged 50, complaining of nervousness, "heart trouble," gastro-intestinal disturbances, and muscular weakness, said she had noticed an enlargement of the neck since puberty and believed her nervousness, palpitation, tachycardia, and flatulence had gradually increased since that time, but more markedly in the past year. The past history was negative except for frequent attacks of cystitis. She had had no operations. She had borne three children, but was now a widow for ten years, and had reached the menopause three years ago. Her father died from a paralytic stroke, her mother died in an accident, one brother and three sisters are living and well but one sister likewise has an enlargement of the thyroid gland. There was no history of tuberculosis or cancer in the family.

Physical examination revealed an elderly white female appearing to be more nearly 60 than 50 years old, very nervous and apparently somewhat edematous, with a pulse rate of 140. The eyes showed no exophthalmus, the pupils were moderately dilated but reacted to light and accommodation. There was possibly a slight lid lag. The tongue was tremulous. The neck showed an enlargement of

the thyroid gland, more marked in the right lobe, with no bruit audible. The chest was symmetrical. The breasts were atrophic. Eighteen centimeters of the 26.5 cm. chest breadth were occupied by the cardiac dullness which showed likewise enlargement to the left. The blood pressure was 170 systolic and 80 diastolic, with a rather irregular, rapid heart rate, and a systolic murmur. The lungs showed fibrotic changes under the fluoroscope, but were negative to percussion and auscultation. The liver was enlarged two finger breadths below the costal margin. Pelvic examination was not done. There was a marked tremor of the outstretched hands and the knee jerks were accentuated.

A diagnosis of toxic goiter, cardiac decompensation with moderate anasarca, was made and the patient sent home to be on Lugol's solution and bromides and digitalis for two weeks with the understanding that she was to enter the hospital for operation after that time. On her entrance to the hospital on May 11 her B.M.R. showed plus 37. On the 12th a subtotal thyroidectomy was performed with very little difficulty and the patient was in fair condition post-operatively. The following day the temperature rose to 106 degrees with a pulse of 160 and the patient died at 5:30 p. m. with terminal pulmonary edema and cardiac dilation.

DISCUSSION

This case brought to mind that during my schooling at Northwestern and during my interneship at the Wesley Memorial Hospital in Chicago, where a great many thyroids are seen and handled surgically, I could recall only one case which met with fatality following thyroidectomy, and was rather surprised to hear that very few severely toxic cases had been handled successfully here in Phoenix.

An examination of the records of this hospital for the past two years revealed that out of twenty-one cases listed as being toxic thyroids and having thyroidectomies performed only fourteen gave definite proof on the charts that they were really toxic. Six of these fourteen I considered from an examination of the charts as early or mild cases leaving only eight cases of truly severe thyrotoxicosis. Five of these eight died following thyroidectomy and only three were sent home as improved. One of these three had had a previous polar ligation, and the two lobes removed at separate operations, thus requiring a three stage operation to effect relief.

On studying these charts it seemed to me that the chief reason for such a high mortality, other than the fact that the cases were far advanced with cardiac damage, was the lack of proper pre- and post-operative preparation and care. The actual surgical removal which I have seen done could not be blamed.

At the Wesley Hospital these patients were put to bed on admission, given a high caloric diet, denied all but a very limited visit with relatives and following a preliminary B.M.R. and possibly a few days of preliminary rest they were put on ten or fifteen minims of Lugol's solution three times daily, with (in severe cases) frequent B.M.R. determinations especially after four or five days had elapsed. It had been previously determined by experiment that usually after ten to fourteen days on Lugol's solution the B.M.R. was at its lowest and the patient was in the best condition for operation. If the patient seemed to be in fairly good condition, or showed considerable improvement after ten days on Lugol's solution, with a reduction in B.M.R. he was operated at this time. If after 12 to 14 days the B.M.R. commenced an upward trend usually the most favorable time had been passed and the sooner he was operated the better. No particular precautions were taken, as does Crile, to put the patient to sleep on several successive days or in the room preliminary to operation, but they were sent to surgery with a preliminary narcotic and operated under local and nitrous oxide anesthesia. During the operation the surgeon would frequently ask the anesthetist to allow the patient to arouse enough to make certain that the nerves had not been touched, but only in the one fatal case that I saw was it necessary to remove the patient from the operating room before the operation was completed. Post-operatively large doses of Lugol's solution (120 minims or more in the first twenty-four hours) were given in the proctoclysis, hypodermoclysis, and by mouth, maintaining the dosage as long as the patient showed any toxic reaction and gradually reducing to ten or fifteen minims or removing it entirely, as the patient improved. Digitalis was rarely used if at all.

Discussion by Dr. Guy French (Coughlin Management)

Cases of thyrotoxicosis come to Dr. Coughlin referred by internists. They have, as a rule, been through a regime of treatment in an endeavor to better prepare them for operation. This treatment has been more or less standardized. A number of these cases respond beautifully to treatment and do not offer the operative hazard that the group does in which malnourishment, extreme nervousness and other complications, such as cardiac, persist. In this latter group surgery cannot expect to relieve the patient of damage which has been done to various systems, however the process may be curbed by removal of the source of toxemia.

When such a case comes to surgical service, history and physical examination and laboratory work have usually been done. The patient is placed in bed in a quiet room, visitors are prohibited except for members of immediate family and then for only a short period. Fluids are forced, high caloric diet given, sedatives administered, and of course iodine, if indicated. After observing the patient under this regime for a short time (usually a day or two) the patient may be given an HMC, the pulse, respiration, and nervous reaction are observed. If it is learned that the patient becomes quiet under such

dose, operation is scheduled for next a. m. The procedure may or may not be disclosed to the individual, depending upon the type. One drachm of Lugol's solution in three pints of water is given night before operation, patient is made to sleep. HMC No. 2 is given one hour before operation, and if deemed necessary, repeated just before patient goes to operating room. It is quite necessary that the removal to operating room be done qquietly, that operating room be ready, and that there is absolute quietude therein. A nurse stands at head of table to reassure the patient. One per cent novocaine is used as anesthetic. Operation is done carefully in order not to excite the patient. Should the patient become excited or dangerously weak during the operation, it may cease with the removal of only one lobe, or both may be removed and clamps left intact, no ligation.

In a great many of the most toxic cases the wound is left open and packed with acriflavine gauze. This gauze is kept saturated.

Patient is returned to room. Temperature is taken rectally every half hour, and if it should suddenly rise to 102 or above, it is reduced with ice applied to the body. Glucose is given intravenously and Lugol's in water forced by mouth unless morphine has caused nausea. If such is the case the desired amount may be given by hypodermoclysis one-half of one per cent in normal saline. Acriflavine pack is removed on second or third day. Novocain is injected into skin and muscles and wound closed inserting small rubber dam drain to prevent serum drainage. After two or three days drain is removed and on fifth or sixth day skin sutures are removed. Patient is kept in bed in a quiet atmosphere and as soon as advisable a H.M.R. taken. During the postoperative period thus far an internist has been in attendance as consultant. However, after the wound is healed, the patient is referred back to internist for the necessary treatment.

THE PURPOSES, PLANS, AND OBJECTIVE OF THE COMMITTEE ON THE TREATMENT OF FRACTURES OF THE AMERICAN COLLEGE OF SURGEONS

C. E. YOUNT, M.D., F.A.C.S.
Prescott, Arizona.

Gentlemen, you have been good enough to accept appointment on the Northern Arizona Sub-committee on the Treatment of Fractures. On this, the occasion of our first meeting, it is expedient that we should become acquainted with our duties and oriented in relation to the Regional Committee of Arizona, Dr. E. Payne Palmer, Chairman, and the Committee on the Treatment of Fractures of the American College of Surgeons, Dr. Charles L. Scudder, Chairman.

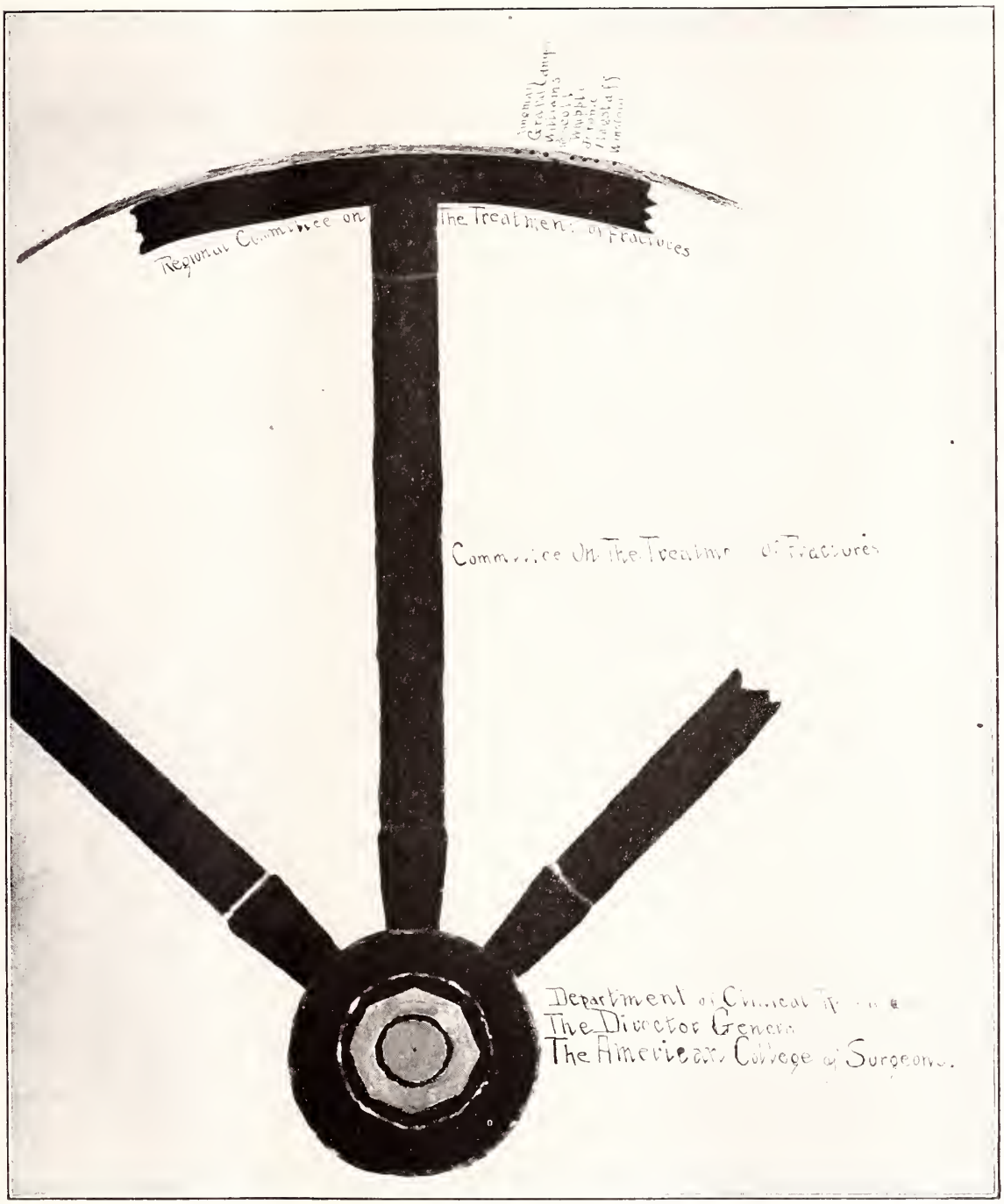
What is our position and function in this great wheel created by the American College of Surgeons? The parts of the old wagon wheel, as I recall them from my boyhood days on the farm, were the hub, spokes, fellies and iron tire. In hot weather the spokes became loosened from the hub, the fellies loose from each other and the spokes. The wheel rattled like a modern radio in a thunder storm, often throwing off the tire, with dire disaster to the fellies, spokes, and hub, yes, and to those riding in the wagon.

Again I ask, what is our position in this great wheel created by the American College of Surgeons? Certainly we are not the hub! That is the College itself. Visualizing our sub-committee as being farthest from the hub, we must be the tire that binds. If the wheel would function properly at all times, it must have its parts in perfect contact and its tire frequently reset to keep the wheel from rattling. This meeting today is for the purpose of setting the tire to the wheel as it applies to Northern Arizona. Before undertaking the smithy's job, let us pause for a moment and see how the wheel has been builded and made ready for the iron tire.

"The American College of Surgeons was organized at a meeting in Washington on Monday evening, May 5, 1913. Four hundred and fifty prominent surgeons of the continent of North America came together at the invitation of an Organization Committee which had been appointed by the Clinical Congress of Surgeons of North America at its meeting in November, 1912."

"The object of the College shall be to elevate the standard of surgery, to establish a standard of competency and of character for practitioners of surgery, to provide a method of granting fellowships in the organization, and to educate the public and the profession to understand that the practice of surgery calls for special training, and that the surgeon elected to fellowship in this college has had such training and is properly qualified to practice surgery."

Dr. J. M. T. Finney, the first president, stated in his presidential address in 1913: "The aim of this organization and the reason for its existence lie in its disinterested and unselfish efforts to elevate the standards of the profesion, moral as well as intellectual, to foster research, to educate the public up to the idea that there is a difference between the honest, conscientious, well-trained surgeon, and the purely commercial operator, the charlatan and the quack; furthermore, that the term 'surgeon' means something more than a suave manner, a glib tongue, a private hospital, a press agent, and the all too easily acquired diploma, with its accompanying title of 'Doctor.' The standardization of surgery is absolutely essential to guard the public against such as these, as well as to preserve the honor of the guild itself. So far as the public is concerned, it is necessary to protect it from the wolves in sheep's clothing, from those who would prostitute their high office for the purpose of gain, from the ignorant and untrained, from


Regional Committee on
The Treatment of Fractures
Committee On The Treatment of Fractures
Department of Clinical
The Director Genera
The American College of Surgeons

those who by reason of the lack of surgical judgment and skill are incompetent. The American College of Surgeons has been called into being as an active, vigorous, virile protest upon the part of the profession itself against this unhappy state of affairs."

So, back in 1913, the surgical branch of the medical profession of America ceased to attempt to elevate itself by its bootstraps and chose rather, by organization, "to educate the public and the profession that the practice of surgery calls for special training," and so forth.

Probably the greatest educational as well as humanitarian accomplishment of the College of Surgeons is hospital standardization. "The purpose of the Hospital Standardization movement is to promote efficient medical service in hospitals and in so doing must take into consideration the providing of suitable accommodation, adequate diagnostic and therapeutic facilities, competent personnel and efficient organization and procedures. The minimum requirements as laid down by the American College of Surgeons are based on the following eight fundamental principles pertaining to hospital organization and apply in common to all institutions caring for the sick and injured:

"1. A modern physical plant free from hazards inimical to the patient's welfare and safety, properly furnished and equipped for the comfort and scientific care of the patient.

"2. A carefully selected governing body representative of the best community interests, in whom is vested complete and supreme authority for the management of the institution.

"3. A competent chief executive officer or superintendent, with authority and responsibility to carry out the policies of the institution as approved and authorized by the governing body.

"4. An adequate and efficient personnel, competent in their respective fiellds, to carry out the details of management and administration under proper supervision, responsible to the chief executive officer of the institution.

"5. An organized medical staff of ethical, competent doctors, to determine, develop, control, and carry out the professional policies of the hospital, subject to the approval of the governing body.

"6. Adequate diagnostic and therapeutic facilities with efficient technical service, under competent medical supervision.

"7. Accurate and complete case records for all patients treated, cross indexed and filed in an accessible manner, so as to be available for future study, reference and clinical research.

"8. Group conferences of the administrative officers and medical staff to review regularly and thoroughly the activities of their respective divisions for the purpose of keeping the service and scientific work on the highest plane of efficiency."

The American College of Surgeons has other departments at work; that of clinical research among other things has delegated to it the work of the Committee on the Treatment of Fractures. This committee composed of twenty-seven of the outstanding fracture men in the United States, Canada and Porto Rico, under the chairmanship of Dr. Charles L. Scudder, constitutes in our simile the spokes of the great wheel.

"In 1922, under the guidance of Dr. Charles L. Scudder of Boston, the study of a standard for the treatment of long-bone fractures was initiated. It was recognized that the minimum standard for hospitals would have to be amplified from time to time by the addition of suggestions for a standard of efficiency in the specialties of surgery. Much valuable material in the treatment of fractures had been accumulated during the war. Standardized apparatus has been evolved, and material accumulated for a still further stabilization of this chaotic subject. Dr. Scudder has organized a committee that is already bringing about order, and the findings, which represent the consensus of opinion of men of experience, have been passed along to clinicians and hospitals for their consideration and adoption. This committee will continue its work and make its yearly report and recommendations through the College and its publications." (A.C. of S., 1925.)

"In 1926, letters were sent out to all of the 1947 hospitals of fifty or more beds, asking for the names of the physicians or surgeons caring for fractures and interested in fractures, in each of these hospitals. Replies have been received from upwards of 1050 hospitals. These replies have been indexed and card-catalogued.

"Your committee, therefore, has in its possession the addresses of individuals in each of the 1050 hospitals who are especially interested and willing to cooperate with the committee in further investigations and study. The committee thus knows the responsible men in each institution.

"A very important fact has been determined by this letter, namely: During tthe year 1924, in the 1050 hospitals questioned, 150,989 fractures were cared for. This is an enormous number and serves as the first

satisfactory summary of this information. Obviously, if the forms of treatment and the results of treatment were known in these (approximately) 151,000 cases, how tremendously valuable this information would be from an industrial standpoint. Such facts the committtee hopes to be able to assemble later." (A.C. of S., 1926.)

Early in 1929, Dr. Scudder visited our State (at Phoenix) as one of the principal speakers sent out by the College of Surgeons to conduct the sectional meteings of the year. Visualize for yourselves the conditions he found as related by these excerpts from his report. They are based on personal observation and contacts made on this extensive trip.

"I have been impressed by the great efficiency of the machinery of the College to function in an educational way, and I believe that the results as regards the general uplift of the profession will endure.

"At each place, in presenting the subject of the treatment of fractures, I attempted to become familiar with local conditions through answers given to the following questionnaire:

Who is taking care of fractures?

Who is doing the industrial accident work?

Who is interested in fractures, in the various hospitals of the city?

Is the workmen's compensation act well administered?

Are there malpractice suits because of poorly treated fractures?

What is the special type of fracture seen in this community?

Is any one doing research on fractures?

Is the orthopedic surgeon interested in fractures?

What kind of work is he doing?

Are there established fracture services in hospitals?

Is there a well-equipped splint room in the hospital?

Does the teaching center have any effect on service rendered the fracture patient?

What is the effect of the open hospital on fracture treatment?

Do standards of results vary?

What is the status of the operative treatment?

Are general practitioners interested in fracture treatment?

Are general surgeons interested?

The answers to these questions put me in touch with the fracture situation in each locality. The questions were not always answered completely, but their presentation led to discussion and to the gleaning of information.

"Interest in the treatment of fractures is growing through this western country. The general surgeon is interested only exceptionally. Very few surgeons are competent to handle all fractures and all their complications. The man practicing orthopedics is interested outstandingly in fracture treatment. A great deal of experimental work is being done. Technic is being used which is not methodical and is without sound foundation—methods which have been found inadequate and unsatisfactory in other localities. Insufficient traction methods are being employed. Operative replacements are too generally resorted to. The indications for the use of the operative treatment are not clearly defined.

"The surgeons are well informed concerning pathological processes and are well versed in the indications for the surgical treatment of such lesions. There is no general body of knowledge of the fundamentals of fracture treatment. The anatomical result of the attempted reposition of a fracture serves often as the only basis for treatment. In certain sections the desire to secure an exact anatomical result, as indicated by the x-ray, is the basis for an early operative replacement. This attitude is urged because, should there be a trial in court, the decision of the court is based largely on the exactness of the reduction, rather than on the amount of function.

"The centers which have teaching hospitals and a moderately closed or controlled hospital staff are, as a rule, doing the best work. A wide open hospital is not conducive to sound work in surgery, particularly in fracture surgery.

"As to the present methods of treating fractures, it may be said that information regarding fracture treatment is noticeably lacking in uniformity. The generally accepted bases for treatment are not always recognized. As a result, experimental forms of treatment are duplicated, to the detriment of both patient and physician.

"In certain fractures of the long bones, it is pretty commonly understood that skin traction, with a small weight gradually increased, will not be effective. Despite this fact, I found this inadequate and obsolete form of treatment many times in use. Obviously dissemination of information on this point through the local regional committees recently formed, will do away with this inefficient procedure and be the means of substituting therefor a better method. One of the important contributions of the frac-

ture committee to progress is the dissemination of knowledge of achievements along all lines of treatment. A very important reason for establishing regional committees is to have available men in the different sections of the country to whom we may send our findings.

"During this trip some twenty regional committees were appointed. (There are now, January, 1931, twenty-four regional groups.) These small groups of men selected from those interested in fracture work will be the means of (1) maintaining local fracture interest; (2) conducting fracture clinics and meetings; (3) organizing teaching demonstrations; (4) keeping in touch with the general fracture committee; (5) receiving and locally broadcasting bulletins issued from time to time by the general committee; and (6) cooperating wtih future visiting delegations from the general fracture committee.

"In conclusion, it may be stated that my visit through the western states served definitely to secure a knowledge of fracture treatment by bringing into view present practice; by informing the profession of the work of the College through its fracture committee to improve treatment; by assembling interested individuals who may develop a mutual understanding of needs; by establishing groups to concern themselves with progress and the output of the Committee contacts; by stimulating interest in fractures directly by personal appeal; by sympathetic personal approval or criticism of work in progress; by assistance in establishing fracture services in the larger hospitals according to local conditions.

"Such contacts as are made by attendance on these clinical meetings, if repeated with regularity, will serve in a large measure gradually to improve fracture treatment." (A.C.S. Bull. Sept., 1929.)

It is obvious that the United States is less than half organized, but we may take just pride in the fact that Arizona, the baby state, has the honor to be included as one of the regional organizations, due very largely to the recognized ability of our chairman, Dr. E. Payne Palmer. His committee represents a "felly" in this great wheel, or "the Regional Fracture Committees of the College are the organized living contacts of the College with the great body of the medical profession."

May I digress for just one moment to note that Arizona is still further honored by the American College of Surgeons by having on its Committee on Traumatic Surgery our esteemed and able colleague, Dr. John E. Bacon, of Miami.

Finally, following our simile to our subcommittee, we reach the tire. You have already visualized it as a very small segment of the iron tire that binds. Without the other parts of the wheel we are but a hoop with which children may play, or a bit of scrap iron. When set to the fellies, what strength! What perfect functioning of a mighty wheel!

Small and seemingly insignificant is our section of the rim, very remote from the "hub," now deep in the mire, now ploughing through the desert dust, now shedding out iron molecules in scintillating energy as we strike the rocks of the roadway, yet, withal, happy that we may have even a small part in this mighty wheel of surgical progress.

If I have drawn my simile with due regard to historic facts and proper evaluations of existing data, it would seem that our duties as sub-committeemen on the "tire," and so very remote from the "hub," may be briefly outlined as follows:

(1) To serve as surgical outposts in fracture treatment;

(2) To evince at all times a progressive attitude in fracture treatment;

(3) To maintain at all times within our sphere of activity an adequate and serviceable minimum equipment for the emergency and definitive treatment of fractures;

(4) To consider fractures as emergencies and the initial treatment as the most important, admitting always that "difficult fractures require the care of experienced surgeons;"

(5) To discard obsolete technic and employ the generally accepted methods, such as are outlined in the Bulletin of the American College of Surgeons, "The Principles and Outline of Fracture Treatment," and to encourage our confreres to do likewise;

(6) To recognize the importance of x-ray diagnoses of fractures but not their infallibility;

(7) To use the standard fracture record sheet authorized by the College and to secure a better follow-up;

(8) Realizing that a large proportion of the medical profession is ignorant of the poor results of present fracture treatment and uninterested in making them better, it is our duty to stimulate the interest that is lacking and improve the hospital and private standards of treatment.

Finally, to epitomize, I quote from the minutes of the General Fracture Committee of the American College of Surgeons held in New York, January 23 and 24, 1931: "At present the General Fracture Committee of the College has numerous sub-committees in the various states and provinces, whose

function is to furnish the central committee with information concerning the status of the treatment of fractures in their respective communities, to stimulate interest in the subject, and to put into effect the general and specific recommendations of the General Committee as regards the standards for fracture equipment in hospitals, supervision of treatment, and other standards set up by the General Fracture Committee."

(The other papers read at this conference will be published this month, as a symposium.)

REPORT OF MEETING OF NORTHERN ARIZONA SUB-COMMITTEE OF THE COMMITTEE ON FRACTURES OF THE NORTHERN AMERICAN COLLEGE OF SURGEONS

Prescott, July 11, 1931.

Our committee held its first meeting at 4 p. m., July 11, 1931, at the Mercy Hospital, Prescott, Arizona.

There were present, Dr. E. Payne Palmer, of Phoenix, Chairman of the Arizona Regional Committee; Dr. H. T. Southworth, representing the Mercy Hospital, Prescott; Dr. R. N. Looney, the Yavapai County Hospittl, Prescott; Dr. Jacob Shearer, U.S. Veterans' Hospital, Whipple; Dr. A. C. Carlson, The United Verde Hospital, Jerome; Dr. Rembert H. Thigpen, The United Verde Extension Mining Co., Jerome; Dr. Charles W. Sechrist, Mercy Hospital, Flagstaff, and the chairman. Dr. B. G. Carson, Grand Canyon Hospital, was unable to attend, Dr. Paul A. Melick, of the Williams Hospital, telephoned that he was detained at the last minute by an emergency case; Dr. Toler R. White, of the Kingman Hospital, wrote that he would be unable to attend because of obstetric engagements; Dr. Oscar S. Brown, Santa Fe Surgeon at Winslow, could not be present.

The program was as follows:

At Mercy Hospital:

1. The Purpose, Plans and Objectives of the Committee on the Treatment of Fractures of the American College of Surgeons,—C. E. Yount, Prescott.
2. The Minimum Equipment of General Hospitals for the Transportation and Emergency Treatment of Fractures,—Exhibition and Demonstrations,—H. T. Southworth and R. N. Looney, Prescott.

At Quarters 6, Whipple Barracks:

3. Open Operations in the Treatment of Fractures, Selection of Cases, Types and Methods, Illustrated, X-ray and Material,—A. C. Carlson, Chief Surgeon, United Verde Copper Co., Jerome.
4. Faulty Union and Non-union of Fractures,—Jacob Shearer, Surgeon, U.S. Veterans' Hospital, Whipple.

6:30 p. m. Dinner at Hassayampa Hotel as Guests of the Sub-Committee Chairman.

Round Table Discussion Led by E. Payne Palmer, Chairman of the Arizona Regional Committee, Phoenix.

Dr. Yount's paper, being introductory, was of necessity largely historic, leading up to the plans and objectives as far as they could be visualized from the reports in the Bulletins.

Dr. R. N. Looney opened the discussion on "The Minimum Equipment of General Hospitals for the Transportation and Emergency Treatment of Fractures—Exhibitions and Demonstrations," with a description of an emergency bag which they have found very helpful in answering fracture and other emergency calls. It is the duty of the office nurse to see that this bag is always equipped for service.

Dr. Southworth discussed "The Emergency Treatment of Fractures," with special reference to teaching all first-aiders to "splint them where they lie." They had two modern motor-driven ambulances at the hospital for our inspection. The advantages offered, when compared with extemporized transportation, were apparent to all. We were then taken to one of the hospital rooms where all the articles in the Minimum Equipment, including portable x-ray and Balkan frame, were displayed for our information. This completed the program at Mercy Hospital.

At Quarters No. 6, Whipple Barracks, Dr. A. C. Carlson gave us a very excellent paper on "Open Operations in the Treatment of Fractures,—Selection of Cases, Types. and Methods." This paper was profusely illustrated by x-ray pictures showing many of the long-bone fractures before and after operation and followup; also one compression fracture of dorsal vertebra. Dr. Carlson was very frank in his discussion of the pathology in each case, demonstrated by x-ray the failure of the closed methods which led to the open operation in each case. Having had the advantage of the Massachusetts General Hospital intensive fracture course in 1929, and a wide industrial experience, Dr. Carlson's discussion proved most instructive. (Four of the doctors present had taken this course.)

Dr. Jacob Shearer closed the afternoon meeting with his paper on "Faulty Union and Non-Union of Fractures." This was illustrated by x-ray films and represented the doctor's views based on many years of fracture work. He was willing to accept Whitman's views on the operative treatment of fresh fractures.

At 6:30 p. m. we adjourned to the Hassayampa Hotel for dinner, with the Sub-Committee Chairman as host. Dr. E. Payne Palmer, Regional Committee Chairman, conducted the round table discussions. After outlining the work of the General Fracture Committee, he called upon each one in turn to give some expression of opinion on the fracture situation as he contacted it.

Dr. Gail D. Allee, Medical Officer in Charge at Whipple, reported that there was only a relatively small percentage of his personnel who had suffered from fractures incident to their occupations, that most of the cases among the employees were the result of automobile accident. The ex-service men, by reason of recent law, are coming to the hospital in increasing numbers for the treatment of fractures, emergency and corrective. Mr. Harry Southworth, son of Dr. H. T. Southworth, and a senior medical student at Rush, gave us first-hand information from Dr. Kellogg Speed's clinic, discussing nerve injuries in fracture of foream. Dr. William G. Carhart, pathologist at Whipple, discussed for us the Ewing type of bone sarcoma. Dr. R. N. Looney gave us an interesting account of the treatment of fractures as industrial casualties before the days of the x-ray, and cited the good functional results usually obtained and the relative infrequency of damage suits in those pioneer days in Arizona. Dr. H. T. Southworth discussed the value of early extension in fractures, and the more prevalent use of the Thomas splint and its various modifications.

Dr. Jacob Shearer presented cases with x-ray:

1. Old fracture into knee-joint, "broncho busting" accident; patient unable to give any accurate

(Continued on page 393)

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CORRECTION

In the article by Dr. Louis H. Fales, last month, on page 318, paragraph one, the word "unusual" should be "usual," making the sentence read as follows: "Bruns, after several years of research, has come to the conclusion that the most **usual** type of rale heard in pulmonary tuberculosis," and so forth.

BOOK REVIEWS

NEW AND NONOFFICIAL REMEDIES, 1931, containing descriptions of the articles standing accepted by the Council on Pharmacy and Chemistry of the American Medical Association on Jan. 1, 1931. Cloth. Price, postpaid, $1.50. Pp. 481+LVI. Chicago. American Medical Association, 1931.

This volume is the annual publication of the Council on Pharmacy and Chemistry of the American Medical Association giving the latest authentic information concerning those of the newer medicinal preparations found worthy of the consideration and use of the medical profession. Each year the Council scans the general articles under which the various preparations are classified and revises these to conform to the latest and best medical thought.

A glance at the preface shows that a number of preparations have been omitted because they conflict with the rules that govern acceptance, because their distributors did not present evidence to demonstrate their continued acceptability, or simply because the manufacturers have taken them off the market. Important revisions have been made in a number of the general articles and in the descriptions of various preparations. Among the new preparations that have been found by the Council during the past year to be eligible for admission to the book are Amytal and Pulvules Sodium Amytal, 3 grains, barbituric acid derivatives for use preliminary to surgical anesthesia; Thio-Bismol, quinine bismuth iodide, sodium potassium bismuthyl tartrate, and Tartro-Quiniobine, bismuth compounds for use in the treatment of syphilis; Scillaren and Scillaren-B, preparations contaniing the squill glucosides; two new cod liver oil concentrates: Synephrine, a new vasoconstrictor, and synthetic thyroxine.

NEW AND NONOFFICIAL REMEDIES should be in the hands of all who prescribe drugs. The book contains information about the newer materia medica which cannot be found in any other publication.

ANNUAL REPRINT OF THE REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR 1930. Cloth. Price, $1.00. Pp. 91. Chicago: American Medical Association, 1931.

This book is essentially a record of the negative actions of that distinguished body, the Council on Pharmacy and Chemistry of the American Medical Association; that is, it sets forth the findings concerning medicinal preparations which the Council has voted to be unacceptable for recognition and use by the medical profession. Many of the reports record outright rejection or the rescinding of previous acceptances; others report in a preliminary way on products which appear to have promise but are not yet sufficiently tested or controlled to be ready for general use by the profession.

Among the reports recording outright rejection are those on: Avesan (H), formerly Nuforal, a mixture stated to be composed of formic acid, sodium nucleinate, camphor, allyl sulphide and chlorophyll, with traces of salicin and sulphuric ether, marketed with unwarranted claims of usefulness in the treatment of tuberculosis, asthma, and other respiratory diseases; Ceanothyn, once before rejected and still found to be marketed with unsupported therapeutic claims; Collosol calcium and Collosol Kaolin, so-called colloidal preparations, the former an unscientific mixture of unproved value, the latter a possibly dangerous preparation, and both marketed with unwarranted claims; Ephedrol with Ethylmorphine Hydrochloride, an unscientific epehedrine preparation marketed under an unacceptable proprietary name with unwarranted therapeutic claims; Farastan, an unscientific iodine-cinchophen preparation proposed for routine use in "arthritis . . . and Rheumatoid conditions"; Haley's M-O Magnesia-Oil, a magnesia magma and liquid petrolatum mixture in fixed proportions marketed with emphasis on the"M-O"; Lydin, a testicular extract, marketed with claims of value in the treatment of impotence; and Metatone, a shot-gun "tonic" mixture marketed under a proprietary name with unwarranted therapeutic claims.

FOOD ALLERGY, ITS MANIFESTATIONS, DIAGNOSIS AND TREATMENT, WITH A GENERAL DISCUSSION OF BRONCHIAL ASTHMA. By Albert H. Rowe, M.S., M.D., Lecturer in Medicine in the University of California Medical School, San Francisco, Calif.; Chief of the Clinic of Allergic Diseases of the Alameda County Health Center, Oakland, Calif.; Consultant in Allergic and Metabolic Diseases, Highland Hospital; President of the Association for the Study of Allergy, 1927-

1928. Pp 442. Lea & Febiger, Philadelphia, 1931.

This volume deals primarily with the problems of food allergy, but emphasizes also the importance of inhalant and other forms. There is also a very complete discussion of bronchial asthma, dealing especially with etiology and treatment. The author shows the necessity of devoting time and thought to the mastery of the detail required for diagnosis and treatment. The value of skin tests is emphasized, as well as the fallacy of depending entirely on skin reactions in the face of suggestive history. Great stress is placed upon the use of the author's "elimination diets" in diagnosis and treatment and he considers diet trial of greater value than testing in arriving at a diagnosis. Methods of other writers are discussed, such as "the food addition method" of Orville H. Brown (Phoenix), the method of "diet trial" of Eyerman and others. Many pages are devoted to suggested diets and such problems as milk-free diet for infants, and wheat, milk and egg free diets are discussed. A prominent place is given to bronchial asthma dealing with etiology and diagnosis by means of skin tests and elimination diets and treatment by environmental control, diet and drugs.

This volume will prove a valuable additioin to the equipment not only of those specializing in allergic diseases, but also of the internist who daily meets with the problems here discussed.

H. P. MILLS.

THE BEGINNINGS—EGYPT AND ASSYRIA, by Warren R. Dawson, F.R.S.E., Fellow of the Royal Society of Medicine, of the Society of Antiquaries of Scotland, and of the Royal Anthropological Institute of Great Britain and Ireland. Paul B. Hoeber, Inc., New York.

Physicians generally are interested in the history of the art and science of medicine. They are busy men, however, and find it impossible to take the average book on Medical History and get a great deal out of it. The Clio Medica series is designed to supply a desire of busy medical men to get a sound foundation in medical history. Clio was the goddess of the muse of history and Clio Medica would be a goddess of a muse of medical history. The plan is that there shall be a series of the small volumes pocket size with the number of pages that can easily be read at one sitting.

The volume—Egypt and Assyria depicts the cradle and earliest stage of medicine. The fact that superstition and mysticism governed all thought concerning disease and its cure made such ministrations to the sick no less a part of medicine. The desire to live forever led to mummifying of the dead (a religious and not a medical procedure) and this procedure has profoundly influenced the development of scientific medicine. It was the embalmers who first acquired knowledge of the intimate structure of the human body. This volume deals with such topics as: Primitive ideas of disease and death: averting death and prolonging life; the magician; the medical books: ancient Egyptian and Assyrian medicine, drugs, doses, and so forth, and the legacy of the past. The text is most readable. Any physician will be greatly edified by its perusal.

ANATOMY, by George W. Corner, M. D., Professor of Anatomy in the University of Rochester. Paul B. Hoeber, Inc., New York.

This volume is another of the Clio Medica series. It deals with the development of anatomical knowledge. The oldest records of medical lore are the Edwin Smith and Ebers papyri. These are compilations from older works long lost. The first dissections of record were on animals in the sixth century, B. C. by Alcmaeon of Craton. Herophilus, Erasistratus, Galen and a few others advanced the knowledge of human anatomy, and preserved it through the dark ages, during which time science was at a standstill. In the middle ages Constantine and Avicenna translated the works of Galen, Aristotle and others and laid the foundation for modern anatomy development.

Raimondo de'Luzzi early in the fourth century taught from the cadaver. Berengario early in the 16th century was the first modern anatomical investigator. His two books were the first to contain systematically arranged illustrations of the skeleton, muscles, blood vessels and the female reproductive organs. The invention of printing and wood cuts advanced the study of anatomy more, however, by dissemination of the ancient knowledge than by new investigation. Vesalius and Ambroise Pare are directly responsible for the rapid advancement of modern anatomical researches. The Italian artists found it necessary to do dissections the better to panit the human form and by their illustrations contributed to an understanding of anatomy. Throughout the modern age there are numerous names justly famous as anatomical investigators. This small volume of 80 pages gives a splendid resume of the history of the development of anatomical knowledge.

O. H. BROWN.

SPONDYLOLISTHESIS. WITH SPECIAL REFERENCE TO THE INDUSTRIAL CASE. J. Edgar Stewart, M.D., St. Louis, Mo. Sou. Med. Jour., 24:317, (April, 1931.)

The author describes the pathological anatomy, incidence and clinical picture of this condition. The conclusive evidence is in the radiological examination, and without radiograms the existence of the displacement can only be guessed at. Any patient complaining of a low back disability or who has sustained an injury to the back should have roentgenograms in two planes, this being just as important in this region as they are about the extremity joints. The importance of x-ray examination at a later date, when the examination following the injury was negative, is very strikingly shown by cases cited. The fifth lumbar vertebra will frequently be shown to have slipped forward some days or weeks following an injury, when nothing was visible on films made at the time.

ARIZONA STATE BOARD OF MEDICAL EXAMINERS

At the April, 1931 meeting of this Board, the following applicants were registered by examination:

DR. MENNO SIMON GAEDE, a graduate of the University of Kansas Medical School, 1928. Dr. Gaede has joined the staff of the United Verde Hospital at Jerome.

DR. CHARLES S. BOONE, a graduate of the University of Arkansas School of Medicine, May, 1929. Dr. Boone is to be located at Miami, Ariz.

The following applicants were licensed to practice in Arizona, by reciprocity.

DR. IRVING E. KAUFMAN of Phoenix, graduate of Rush Medical College (1922), formerly located in Chicago. By reciprocity with Illinois.

DR. HAMER C. IRWIN, graduate of Johns Hopkins (1905), now located at Pocatello, Idaho. By reciprocity with Idaho.

DR.ELMER F. GARLINGTON, graduate of University of Louisville (1913), now located at Royal Oak, Mich. By reciprocity with Kentucky.

B. M. BERGER, Secretary.

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The modern tempo of living imposes a strain that is reflected in the patients of every physician. The need for relaxation, the importance of sleep and tranquillity requisite for the renewal of exhausted strength, is emphasized daily.

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American Congress of Physical Therapy
October 5, 6, 7, 8, 1931.
Hotel Fontenelle, Omaha, Nebraska.

The tenth anniversary session of the American Congress of Physical Therapy will be held October 5, 6, 7, 8, 1931, at the Hotel Fontenellle, Omaha, Nebraska. The Congress has always endeavored to present a program of high quality, and while each year has seen a steady improvement, this year's program is of such a standard that it will be difficult to surpass in the future. Appreciating the desirability of clinics and clinical demonstrations, the program committee has set aside the mornings for these purposes. It will be the first time that the society will have available ample clinical material for medical and surgical services. The cooperation of the University of Nebraska, College of Medicine, and the Creighton University School of Medicine has made this possible. In the section on Eye, Ear, Nose and Throat, tonsil clinics will be conducted daily during the first three days of the meeting. Electrosurgery for tonsils has found a definite place in the armamentarium of many surgeons. Prominent specialists will demonstrate the various methods and technics now being employed.

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WANTED—Salaried appointments for Class A Physicians in all branches of the Medical Profession. Let us put you in touch with the best man for your opening. Our nation-wide connections enable us to give superior service. Aznoes National Physicians' Exchange, 30 North Michigan, Chicago. Established 1896. Member The Chicago Association of Commerce.

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A training school for different children, which provides medical treatment, without interrupting the school work, and also provides schooling for those cases that can not attend the regular schools.

A complete neuro-syphilitic service, including the latest form of heat therapy generalized diathermy—which gives all of the advantages of malaria without the dangers.

A sane treatment of drug addiction, which takes into account the underlying psychic causes, and attempts a permanent cure, by removal of these factors.

A diagnostic service for organic neurological conditions, including complete laboratory studies, where indicated.

As mentioned before, we have felt that rate reductions were advisable, and this has been done within the last few months.

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SPECIALISTS IN INFANT DIET MATERIALS AND PIONEERS IN VITAMIN RESEARCH

REPORT OF MEETING OF NORTHERN ARIZONA SUB-COMMITTEE

(Continued from page 387)

information as to original diagnosis or pathology; after five years there were multiple chondromata (Wassermann negative), some loose, others growing from articular surfaces of injured femur and tibia, producing a deformity greatly interfering with normal function.

2. X-ray of fracture at upper and middle third of femur with moderate amount of callus and marked bowing, six-screw Lane plate in situ; only four screws had been used and these were the center four. It was debated whether the bowing was due to inadequate support from the Lane plate, too early use of the leg, or both. Certain it was that a walking caliper splint would have prevented the deformity.

Dr. R. H. Thigpen discussed infection in compound fractures. The likelihood of particles of clothing and other infective material being carried deep into the wound in gunshot and explosive mine fractures was stressed. Complete sterilization is indispensible to early union in these fractures.

Dr. Charles W. Sechrist discussed the probable source of infection in a case of multiple gunshot wounds of pelvis and femur, comminuted fracture in upper third of femur, suppuration, osteomyelitis, and satisfactory union after eleven months' treatment. A loop of the ileum had been perforated in this case.

Dr. C. E. Yount called attention to some of the work of the General Fracture Committee:

(1) The proposed manufacture of standard bone plates and screws of the Sherman type, having the stamp of the American College of Surgeons;

(2) The broad field of cooperation in first aid in fractures being opened up through the establishment of Red Cross first-aid stations. It was suggested by Dr. Yount, and agreed to by the sub-committeemen present, that, should the Central Fracture Committee and the Red Cross so desire, we would offer the following propositions:

(a) That certain automobile filling stations within the jurisdiction of each sub-committeeman be designated as first-aid station for the American Red Cross;

(b) That the sub-committeeman be responsible for the training of his first-aiders at these stations, as provided in Red Cross Regulations;

(c) That special effort be made to secure from the Red Cross adequate fracture equipment for these designated first-aid stations.

If this method were put into practice by all sub-committees it would not be many years before the network of first-aid stations operating under the General Fracture Committee of the American College of Surgeons and the Red Cross would cover the whole United States. I can conceive of nothing which would react for greater good in automobile fracture cases and insure better emergency and after treatment in those fractures.

Dr. Yount then thanked Dr. Palmer, his other guests and his committee for the hearty cooperation in making this organization meeting a very successful one. Adjournment was then taken.

(Signed) C. E. YOUNT,
Chairman Northern Arizona Sub-Committee
on Treatment of Fractures.

DISCOMFORT SPOTS . . .

THE armpits—the feet—the hands—become discomfort spots when plagued by excessive perspiration. The physical result may be chafing, "heat rash," excoriation. The social consequences may be equally distressing, for perspiration often leaves in its wake an odor quite unpleasant.

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Medical Director

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AUGUST to FROST HAY-FEVER

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provide the several ragweeds as regionally dispersed and are selected for delivery according to the locality.

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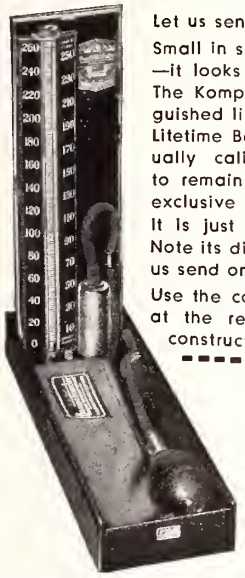

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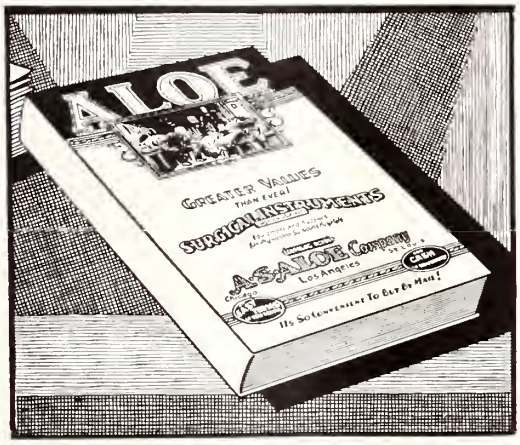

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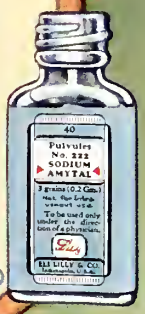

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The Penalty of Leadership

IN EVERY FIELD of human endeavor, he that is first must perpetually live in the white light of publicity. Whether the leadership be vested in a man or in a manufactured product, emulation and envy are ever at work. In art, in literature, in music, in industry, the reward and the punishment are always the same. The reward is widespread recognition; the punishment, fierce denial and detraction.

When a man's work becomes a standard for the whole world, it also becomes a target for the shafts of the envious few. If his work be merely mediocre, he will be left severely alone . . . if he achieve a masterpiece, it will set a million tongues a-wagging. Jealousy does not protrude its forked tongue at the artist who produces a commonplace painting.

Whatsoever you write, or paint, or play, or sing, or build, no one will strive to surpass or to slander you, unless your work be stamped with the seal of genius. Long, long after a great work or a good work has been done, those who are disappointed or envious continue to cry out that it cannot be done.

Spiteful little voices in the domain of art were raised against our own Whistler as a mountebank, long after the big world had acclaimed him its greatest artistic genius.

Multitudes flocked to Bayreuth to worship at the musical shrine of Wagner, while the little group of those whom he had dethroned and displaced argued angrily that he was no musician at all.

The little world continued to protest that Fulton could never build a steamboat, while the big world flocked to the river banks to see his boat steam by.

The leader is assailed because he is a leader, and the effort to equal him is merely added proof of that leadership. Failing to equal or to excel, the follower seeks to depreciate and to destroy . . . but only confirms once more the superiority of that which he strives to supplant. There is nothing new in this. It is as old as the world and as old as the human passions . . envy, fear, greed, ambition, and the desire to surpass. And it all avails nothing.

If the leader truly leads, he remains . . . the leader. Master-poet, master-painter, master-workman, each in his turn is assailed, and each holds his laurels through the ages. That which is good or great makes itself known, no matter how loud the clamor of denial. *That which deserves to live . . lives.*

[This text first appeared as an advertisement of The Cadillac Motor Car Company and is reprinted by their special permission.]

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SOUTHWESTERN MEDICINE

(REGISTERED U. S. PATENT OFFICE)

Volume XV | September, 1931 | No. 9

OFFICIAL ORGAN
OF THE
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ARIZONA PHYSICIANS: TAKE NOTICE

A History of Arizona Physicians and Arizona Medicine is in the course of preparation by a member of the Editorial Staff of Southwestern Medicine. This is for the purpose of supplying data on Arizona medicine for inclusion in a History of Medicine in the United States now being prepared. The task will be greatly lightened if each Arizona physician, and former Arizona physician, will supply data with regard to himself, following the outline given be'ow... The data on deceased physicians will be difficult to obtain unless those who have such data will be good enough to furnish it.

Outline for data: (Please fill out AT ONCE).

Name in full .....

Place of birth ..... Date of birth .....

Father: Name ..... Nationality ..... Occupation .....

Mother:- Maiden name ..... Nationality .....

Places and dates of your residence .....

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Educational institutions attended and years; degrees obtained .....

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Date of marriage ..... Wife's maiden name .....

Names and ages of children .....

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Licensed to practice in what states; dates of licenses .....

Places and dates of medical practice: .....

Specialty practiced: .....

Medical publications:- Titles of articles or books and places with dates of publication .....

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Other Medical activities .....

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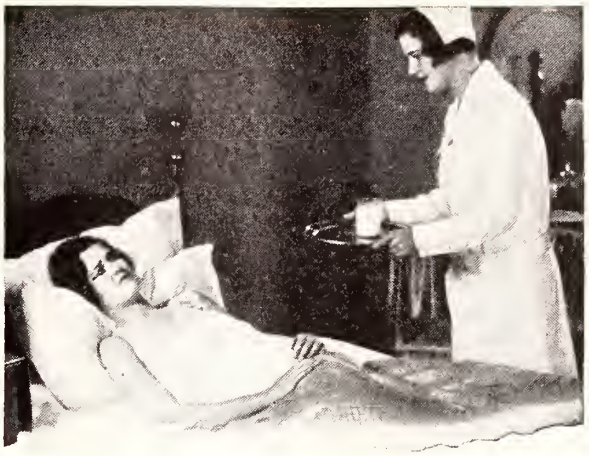

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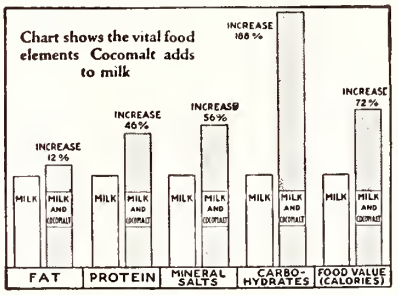

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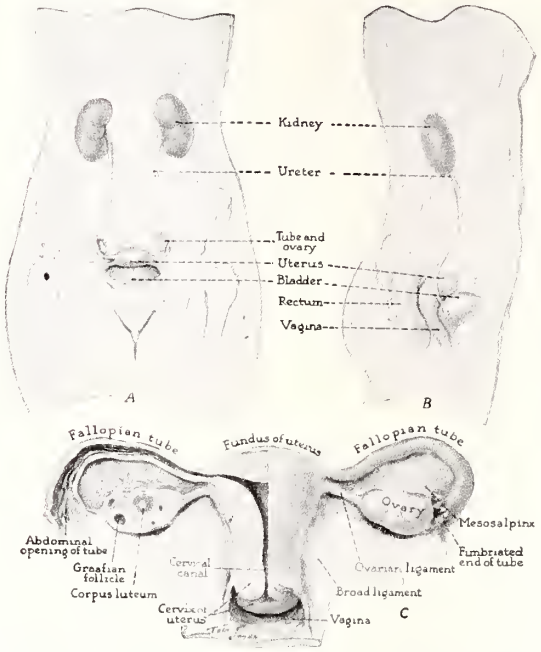

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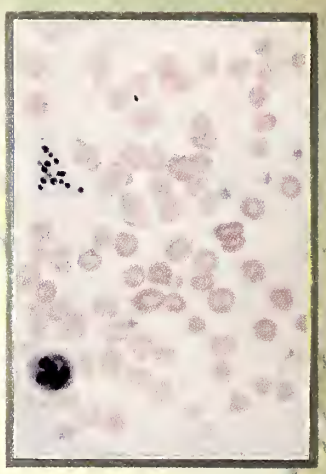

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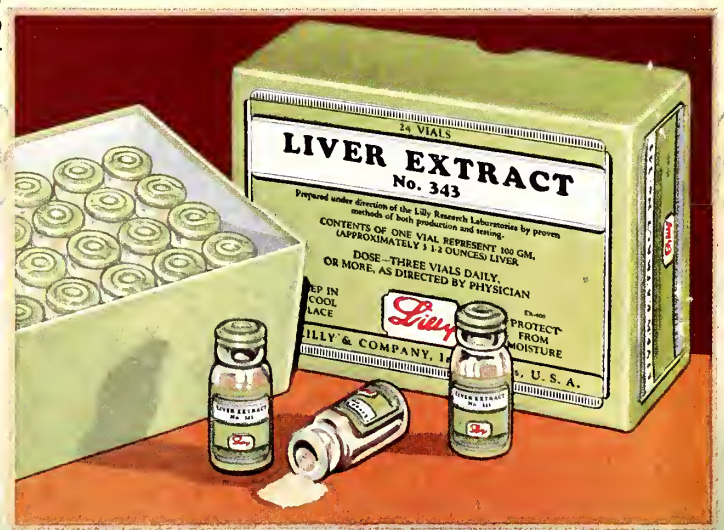
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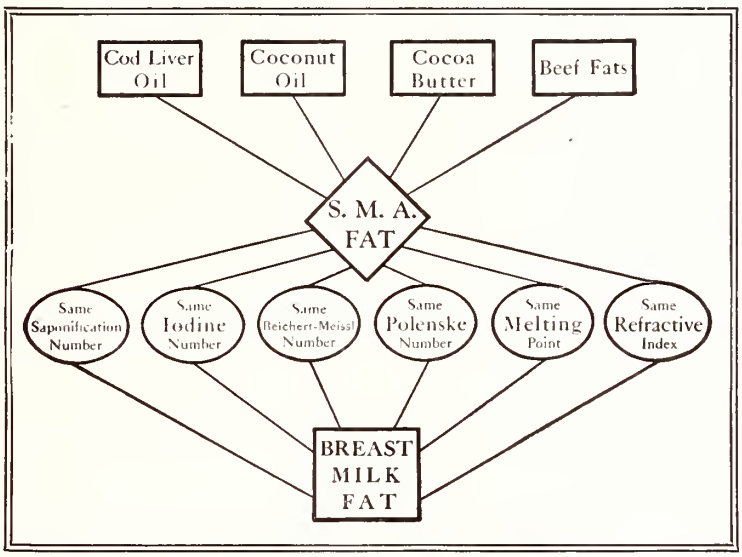

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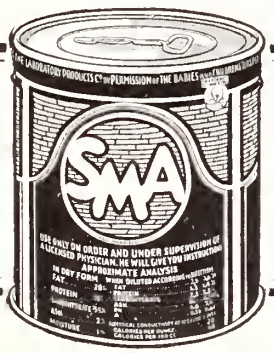

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RELATIONS BETWEEN PUBLIC HEALTH ADMINISTRATION AND PRIVATE PRACTICE

J. ROSSLYN EARL, Dr. P. H.
Director New Mexico Bureau of Public Health.

(Read before the Bernalillo County Medical Society, May 6, 1931.)

The relationship between the health bureau and the practising physician may be considered from two different points of view, according to which is, or might be, the aggressor. Usually it is the public health department which is aggressive, interfering, even, sometimes, a nuisance to the private practitioner. Let us, therefore, consider this aspect first and save the other and more important matter of the aggressive practitioner for later discussion.

The public health department tends to be a nuisance because it is its business to be a nuisance. We are responsible to certain federal authorities, namely the Census Bureau and the Public Health Service and through them to the people of the United States, for the accurate and prompt notification of births, deaths, and communicable disease. We are also responsible to the people of New Mexico, who employ us, for the detection and control of epidemic disease and for the preservation of the public health. Whenever we are aggressive, therefore, it is because we have to be rather than because we like it!

Fortunately the objectives of the health board are directly in sympathy with the ideals of the medical profession. Article 2 of the Constitution of the American Medical Association states that "The objects of the Association are to promote the science and art of medicine and the betterment of public health."

The ethics of the Association also specifically enjoin its members to cooperate in the administration of public health laws, and members of the New Mexico Medical Association constantly do so. The few doctors who fail us from time to time are not members of the Association.

Nobody, however, delights in useless work —what the French call travail de singe— however ethical it may be, and whenever there is a lack of cooperation on the part of some physician, the first thing I suspect is that he does not understand the reasonableness of our requests. Recently our vital statistician has been attempting to secure better notification of cases of pneumonia. I wonder how many physicians have assumed that this effort was due to a misguided affection for red tape. There are at least two good reasons why we are interested in the incidence of pneumonia. The first is that it provides us with an index of the prevalence of influenza. True, influenza is also a reportable disease, but experience shows that it very difficult to secure reports. Perhaps the cases are too numerous, perhaps many of them appear to be of too mild a nature to justify a report. At least, during March of this year, when it seemed that every person that we met had just had influenza and all the offices in the Capitol were eloquent with vacant chairs, we never had more than twenty-nine cases of influenza reported in any week from the entire state. Pneumonia is, then, an index which warns us indirectly of the nature of an influenza epidemic and which supplies data to those federal epidemiologists who are studying the behavior of influenza in the country as a whole. In the second place, pneumonia is an important cause of death in the mountain states. We should like to know the fatality rate in New Mexico, and to know this we must know the number of cases as well as the number of deaths.

Recently our vital statistician, having no-

ticed a death certificate on which the cause of death was inscribed as pneumonia, and for which there was no corresponding case notification, wrote and asked the doctor whether by chance he had overlooked reporting this case before death. The doctor replied that, if we desired, he would in future send notification by telegram—the case was moribund when first he saw it. Now this doctor has never thought of any other use for notification than to institute quarantine and therefore could see no sense in notifying to the health officer a case that would be dead before the health officer could do anything about it. I expect he felt that we were very stupid to desire a notification of pneumonia under such circumstances.

This is but one example—many others could be cited—of misunderstanding which arises through lack of contact between our bureau and practising physicians. Since many doctors in this state are not members of the State Society and since the distances are so great, it is impossible for us to meet personally a large proportion of the profession. There arises, in consequence, a certain need for charitable judgment on both sides and a belief that the other fellow may not be such a fool as he seems.

In the past, resentment has been aroused among the profession less by the activities of the public health administration in securing notification of births, deaths, and communicable diseases, than by certain efforts of these administrations to preserve the public health by methods that have interfered, or seemed to interfere, with the physicians' business. I cannot find that this has been particularly true of New Mexico. However, it may be worth while to inquire even here as to the legitimate limits of the public health doctor's invasion of the field of treatment.

In the first place, I would postulate that a health officer has the right to treat disease when (1) the private practitioner is not treating it and (2) its treatment is necessary for the protection of the public. If we can agree on that principle, and can work together with goodwill, I believe that the difficult borderline cases that will constantly arise in practice will be fairly adjusted.

There are two main reasons why the practitioner may not be treating a contagious disease: the patient may not believe in doctors, or he may not be able to pay them. In either case, as private practice is now organized, the practitioner will suffer no material loss if the health officer undertakes treatment. On the other hand, the bureau of health is far from anxious to undertake any treatment of indigent cases. It is my belief that some day, and soon, adequate treatment will be provided for all indigent cases (not merely those which constitute a menace to the public health) either through the initiative of the medical profession or through the initiative of the state. There are a dozen reasons why the profession should be first in the field with their plan, but these are outside the scope of the present paper.

I regret almost as much the present need for the health officer to give prophylactic treatment. This, in the twentieth century, is just as much the business of the practitioner as is any other form of therapy. But children must be vaccinated, they must be protected against diphtheria, they must be properly fed, clothed, and cared for in infancy. So long as you will not undertake to do these things I conceive it is the responsibility of our bureau to see that they are done. We cannot begin to fulfill the task adequately. We will turn it over to you whenever you want it. And, meanwhile, we will do our best to see that the officers in charge of prenatal or infant welfare clinics live up to the ethics of our common association.

Now I come to the other side of the shield. In what respects are you, or might you be, aggressive towards the Bureau of Public Health? We have a few facilities, such as the public will enable us to pay for. Are you using them?

There is, in the first place, our department of vital statistics. This department depends upon you for its material and you should have the first claim upon its products. The current number of the Journal of the American Medical Association[1] contains an example of the interesting statistical discoveries that may be made with the aid of the public health statistician.

A county or state medical society has unlimited opportunities for cooperative research. The health administration can help by supplying the often necessary statistical analysis.

We have no separate bureau of health education, but we have a quantity of educational literature for distribution. We have also some films and can tell you where other films may be obtained without cost beyond that of transport. Every physician visiting Santa Fe is invited to call upon the Bureau of Public Health, inspect its stock of literature and its loan library of technical works, and

(1) Acute Appendicitis: A survey of Its Incidence and Care in Philadelphia. John O. Bower, M.D. Philadelphia Journal of the American Medical Association, Vol. 96, May 2, 1931.

to carry away with him whatever he may find of value.

The state laboratory is anxious at all times to aid you by making tests whenever those tests are demanded primarily in the interest of the public health. Tests that are made primarily in the interest of the patient should naturally be made by a specialist who charges the patient a fee. It is inevitable that many tests made primarily in the public interest will give information that is also of value to the patient. This creates a degree of unfair competition which can at least be minimized by the loyalty of the profession to its own members as well as to the public.

Physicians who find their work complicated by problems of environmental sanitation will often be able to gather useful suggestions from the state sanitary engineer. No doubt he is kept busy. Even so, the practising physician has as much right, and more, to call upon his time as any other member of the community.

The nursing division is represented by the county health nurses out in the field. These nurses cannot, of course, undertake bedside care. But, under the direction of the county health officer, they can perform many services in which the practising physician is interested. They instruct in the technic of isolation; give advice to pregnant women; discover defects in children and urge the parents to take their children to a doctor for advice and treatment. Whenever you see opportunities for public health nursing that you feel are being neglected, please draw the attention of the county health officer to such opportunities. If, on the other hand, a nurse seems to be overstepping the boundaries of her province bring that to the health officer's attention also. Maybap he can easily explain what has been misinterpreted. Maybe mistakes have been made. We have a supervising nurse at Santa Fe who can make all rough places plain.

Finally I would call attention to a recommendation of the White House Conference that has received less attention than, in my judgment, it deserves. It was recommended that State Medical Associations appoint a public health committee to confer with the public health administrators of the state. Such conference should lead to many progressive public health undertakings as well as to a continued mutual understanding and respect among us all.

(Note: At the meeting of the New Mexico Medical Association in Albuquerque, May 20-22, and on the initiative of the delegates of the Bernalillo County Medical Society it was agreed to appoint a committee on public health of the State Medical Association.)

CHRONIC FRONTAL SINUSITIS

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(Read before the New Mexico Medical Society, at its Forty-Ninth Annual Meeting, at Albuquerque, N.M., May 20-22, 1931.)

There is no disease so difficult to treat as chronic frontal sinusitis. It differs so much in symptomotology and pathology that apparently similar cases present entirely different aspects. Each case must be studied separately and treated according to its several indications. Often these indications are hard to interpret, for the frontal sinuses are irregular in size and shape and differ anatomically in every individual.

Ear, Nose and Throat men for the most part have been trained as physicians, or as surgeons. A few have had training in pathology. A thorough knowledge of pathology, however, is essential in this disease, for it is the basis of understanding its symptomatology and treatment.

The cause of sinus disease has created much discussion. All are agreed on one thing, and that is that bacteria are present in all cases. They are the causative factor in the disease. They become more virulent as the bodily resistance is lowered by systemic infection. One group of rhinologists claim that sinus disease is the result of direct extension of infection along the mucous membrane layers of the nose. Others feel that sinuses are directly invaded through the blood stream. Inasmuch as the mucous membrane at the opening is the same structure histologically as that in the sinus itself, the extension of the inflammation from the nose is likely what happens in the majority of cases. The greater number of infections of the sinuses follow the infectious diseases.

"Suppurative diseases of the sinuses are the direct result of bacterial invasion but whether these micro-organisms act primarily directly on the mucous membrane or whether they require that the vitality of the mucous membrane be first lowered by some general systemic disease," seems to have been a more or less debated question. It is the consensus of opinion at the present time that the mucous membrane's vitality has first to be lowered by local and general causes, for the bacteria to be effective. Dean, of St. Louis, has stressed diet, but also says it cannot take the place of proper laryngological procedure.

Ballenger in his book, published many years ago, gave obstruction to drainage as the causative factor. Hurd, of New York, in a more recent article, says that besides this,

three other things are to be considered: (1) deficiency in vitamines; (2) allergy; (3) endocrine disturbances. These conditions cause the mucous membrane to lose its tone and this allows invasion of bacteria.

Acute sinus disease is prone to heal spontaneously. If it does not heal, and becomes chronic, it is because of two factors, local and general. The local conditions are any anatomical or pathological causes that obstruct drainage. The general conditions are any that have a tendency to lower the resistance of the body. Disease of the sinuses means there is some general systemic, metabolic, or nutritional wrong, or some local condition which reduces local resistance for bacteria to gain a foothold. The removal of these causes tends towards a spontaneous restoration of a normal condition.

Chronic frontal sinus disease does not result from one attack as a rule, but from several repeated attacks of acute inflammation. Between the acute attacks there are apparently normal intervals, when the patient is free of symptoms, except an early morning clearing of the throat, hawking, and spitting. After each inflammatory attack, the mucous membrane has less tendency to return to normal. As the outlet is engaged in the inflammation, it thickens and there is a narrowing of the naso-frontal duct, which tends to hinder spontaneous healing. The statement of the patient that he is free from symptoms except when there is an attack of coryza, is no proof that condition in the sinus is normal during the interval. The more attacks the patient has, the more severe are his subjective symptoms; consequently, the more development there is of pathological changes in the mucosa of the affected sinus. Once the condition of sinusitis is established, there seems to be a vicious circle maintained by the local and general conditions combined. The general conditions lower the vitality. This makes local conditions worse. There is a production of edematous mucous tissue, which blocks the sinus. The toxic products attending on the disease are absorbed by the system, so we have a continued lowering of the vitality with subsequent continuation of the sinus infection.

Three types of mucous membrane inflammation are recognized clinically: (1) thickening of mucous membrane, with pus; (2) thickening of mucous membrane, without pus; (3) the type in which the mucosa has undergone a diffuse fibrosis with infiltration. There are all grades, conditions, and mixtures of these three types. There are no findings, however, that will enable one to correlate a definite group of symptoms with the pathological findings. It is impossible to bring different anatomical findings into harmony with clinical symptoms.

The pathological anatomy of sinus is interesting. The slides shown you illustrate the condition of the mucous membrane in chronic disease. The tissue shows inflammatory changes, with marked infiltration of round cells. There is thickening of the mucous membrane, with increase in fibrous tissue. In some of the specimens you will note a decrease in the glands, and tissue spaces that have been filled with serum. In the books several forms and stages of the chronic disease are given. (1) the edematous; (2) the glandular; (3) the fibrous form, are beautifully illustrated, but in these specimens you will see mixed form that is hard to separate.

In making a diagnosis of chronic frontal sinusitis there are two things greatly helpful, the x-ray and the presence of secretion that can definitely be determined as coming from the frontal sinus.

The x-ray, when corroborated by the presence of pus, is the positive proof of a diseased sinus. Pain is seldom present except during an acute exacerbation or in the presence of impending complications. When present, it is usually very severe. These patients always have a sense of fullness or pressure in the frontal region. On examining the region of the opening of the naso-frontal duct, we see in nearly all cases a swelling of the anterior tip of the middle turbinate. In most chronic cases the naso-frontal duct is fairly easily probed. It is sometimes constricted or blocked by the uncinate process, by the bulla ethmoidalis pushing forward, on enlarged middle turbinate, a thickened or deflected septum, or by nasal polypi. When pus is retained over too long a period during one of the acute exacerbations, we get bony necrosis. Pus breaks through the bone, causing edema of the eyelids or orbital abscess, or through the inner wall, causing a brain abscess or meningitis.

There is much diversity of opinion regarding the treatment of sinuses. The patients are bewildered by the different things told them. Some physicians are very conservative, meaning by conservatism that they do not believe in doing anything at all, while others would rip out the sinus, teeth and toe-nail, so to speak, with utter disregard for the consequences. Such an attitude has brought sinus surgery into disrepute. It has led to an idea that "once a sinus, always a sinus." Some say there has been too much ill-timed surgery done on the sinuses, surgery that has made the patient infinitely

worse, yet at the same time they claim it has its place in treatment and cannot be dispensed with. The idea in sinus surgery should be this: When a decision is reached to operate on a sinus, the operation should be done thoroughly and painstakingly, if at all. It is the half-operated sinus that does not do well, and has added more than anything else to the disrepute of surgery in chronic sinus disease. I believe the key note of treating sinuses is this: Seek to remove any underlying cause that would undermine the health and keep the patient below par. Build up the resistance by hygienic, or other measures. Then remove all local causes, leaving the nose in as nearly a normal condition as possible. The least that can be done in a nose to restore it to its proper function, the better for all concerned. There are many cases of chronic frontal sinus disease cured by a submucous resection and proper hygienic measures. Conservatism that borders on therapeutic nihilism is not to be recommended, but rather that conservatism that tends toward a normal restoration of function.

Patients suffering from chronic frontal sinus disease almost always consult a physician for one of four things: (1) chronic pharyngitis, with inflammation of the lateral wall of pharynx; (2) an acute exacerbation of a chronci process; (3) polypi in the nose; (4) bony necrosis, sub-periosteal abscess, orbital abscess, brain abscess, or meningitis. Most all interval cases are discovered during routine examination. The only annoyance chronic interval patients seem to have is blowing the nose and clearing the throat on arising each morning.

Treatment should be directed to the cases in hand; no two are alike and all require careful study. As a rule, they will come under the classification as listed above and can be so treated.

The first type, chronic pharyngitis cases, are treated in the following manner: A careful examination is made. If there is not room in the nose, a sub-mucous resection is done and the middle turbinates fractured over toward the septum. The nose is packed every other day, in the region of the naso-frontal duct, with tampons soaked in 10 per cent argyrol in glycerine. This is allowed to remain thirty minutes and then gentle suction is applied. Hygienic and other measures are gone into thoroughly. The most of these cases get good results. They lead a fairly comfortable life, with a discharge after each attack of rhinitis, but no pain.

Acute exacerbation. These cases come in suffering severe pain. When the disease is quiescent there is no pain. It is in the acute attacks and flare-ups of chronic process that there is pain. The pain is severe. It often appears at a regular time each day. It is over the forehead, at times behind the eye, radiates to the temple, and is felt behind the ear. Frequently there is a painful spot two inches behind and one inch above the external auditory canal. Cases have been seen with pain on one side and the lesion on the other. These patients must have relief. The anterior tip of the middle turbinate is taken off, and the sinus irrigated with normal salt solution. In 95 per cent of the chronic cases, a sound can easily be passed, after inflation of the turbinate or resection of the anterior tip. The patients are put to bed, and usually are free of pain in a few hours. After the acute symptoms have subsided, a submucous resection is done, if needed. They are then treated as class 1.

Class 3. The polypus cases. The blocking of the nasal passages is usually what attracts the attention of the patient to his trouble. The frontal and ethmoid sinuses are diseased, as in most of the others, but the polypus is the main complaint. These cases are surgical from the beginning. The polypi are removed and an intra-nasal operation is done on the frontal and anterior ethmoids after the method of Halle. Fifty milligrams of radium is placed in the ethmoid area and left two hours. The patients are allowed to rest a few days. They are then treated with argyrol packs and gentle suction.

The fourth class are those in which we have an orbital abscess, bony necrosis, or other urgent complication. These require an external operation. After having tried all types of operations, it seems Skillern's modification of Lothrop's old operation, changed to suit the case in hand, gives the best results.

This is done as follows: The intra-nasal, ethmoid and frontal operation of Halle is first done. Then externally an incision is made from the junction of the frontal with frontal process of maxillary through middle of eyebrow, as far outward as the x-ray picture shows the sinus to extend, the cut extending only through the skin and sub-cutaneous tissue. The flaps are then dissected up and down for a distance of one-half to one inch. Hemorrhage is controlled by hemostats. Beginning now at about one-fourth inch higher, the incision is extended through the periosteum to the bone, paralleling the first incision. The upper flap is dissected up as far as the sinus extends, the lower one to about the level of the floor of sinus. With

a chisel, an opening is made into the sinus above the junction of the frontal and maxillary bones. A groove is made, with a Killian V-shaped chisel, from this opening to outer limit of sinus just under the periosteal incision. This is to keep the lower part from chipping off during the rest of the operation. The remaining upper outer and inner wall of the sinus is then removed with chisels and rongeur bone forceps. If all the mucosa is diseased, it is removed; if not, only the diseased portion is removed. All septa are removed so as to have one large smooth cavity. A probe is passed into the naso-frontal duct. The naso-frontal spine is removed with a rasp or chisel until the opening is large enough to permit free drainage. Any ethmoid frontal cells, that have been overlooked during the intro-nasal operation, are then removed. Gauze is passed through the naso-frontal duct and all loose pieces of bone wiped away. A rubber drainage is passed through the opening, leaving the upper end about the middle of the sinus, the lower end at the opening of the nose. The periosteal and muscular flap is then closed with chromic catgut; the outer skin, with fine silkworm gut. The usual after care is practised. The patients, as a rule, are able to leave the hospital in ten to twelve days.

In conclusion, I wish to state that the surgeon who expects to cure his sinus cases by surgery alone will be doomed to much disappointment. Surgery is necessary in many cases, but a knowledge of the endocrine system, whether the case is allergic or not, and the administration of proper foods, particularly the vitaimns A, B, and D, is also highly essential, for it has been definitely proved by observers that a cure cannot be brought about by surgery alone, nor by hygienic measures alone; but the two, when properly combined, will in most instances effect a cure.

BIBLIOGRAPHY

1. Marriott, McKim: Pediatric Aspects of Otolaryngology, Ann. Otol. Rhin. & Laryng., 37, p. 71.

2. Emerson, Francis P.: Degenerative Changes in Living Membrane of the Maxillary Sinus and their relation to Systemic Infection, Ann. Otol., Rhin. & Laryng. 37, p. 113.

3. Mullin, M. V.; Ball, R. P.: Studies of Pathological Tissue Removed from Chronic Infected Nasal and Accessory Sinus, Ann. Otol. Rhin, & Laryng. 37, p. 182.

4. Harris. Thomas J.: Acute Accessory Sinusitis and its Management, Ann. Otol. Rhin. & Laryng., 37, p. 1094

5. Skillern, Ross H.: The Diagnosis and Treatment of Chronic Antral Sinusitis, Ann. Otol. Rhin. & Laryng., 37, p. 1187.

6. Emerson, Francis P.: Anaphylaxis and Allergy in Rhinology, Ann. Otol. Rhin. & Laryng., 37, p. 313.

7. Dean, L. W.: The Relation of Deficiency Diet to Diseases of the Sinuses, Ann. Otol. Rhin. & Laryng., 37, p. 607.

8. Proetz, L. W.: The Sinus in Perspective, Ann. Otol. Rhin. & Laryng., 37, p. 682.

9. Lewis, E. R.: Considerations for and against Curetting and Exenterating Sinus Operations, Ann. Otol. Rhin. & Laryng., 37, p. 685.

10. Flinberg, Samuel M.: Nasal Allergy as Related to Hay-fever and Hyperestheic Rhinitis, Ann. Otol. Rhin. & Laryng., 39, p. 720.

11. Hurd, Lee M.: Chronic Infections of the Nasal Accessory Sinus, Ann. Otol. Rhin. & Laryng., 39, p. 966.

12. Goodspeed, Harry B.: Present Status of the Lothrop-Skillern Radical Operation on the Frontal Sinus, Laryngoscope, 40, p. 832.

13. Fruhwold, V.: Inflammation of the Frontal Sinus; its Conservative and Endo-Nasal Treatment, Laryngoscope, 41, p. 81.

14. Skillern, Ross H.: Diseases of the Accessory Sinuses of the Nose.

15. Hajek: Nasal Accessory Sinuses.

16. Ballenger: Diseases of the Nose, Throat and Ear.

17. Jackson and Coates: The Nose, Throat and Ear and their Diseases.

18. Loeb: Operative Surgery of the Nose, Throat and Ear.

19. Acknowledgement is made to Dr. J. E. Garces, pathologist, St. Anthony Hospital, Amarillo, Texas, for the microscopic sections of the sinus mucosa, and to Drs. Sam K. Skilllern and Harry B. Goodspeed, of the Skillern Clinic, Philadelphia, for the slides illustrating the Lothrop-Skillern operation.

DISCUSSION

DR. S. D. SWOPE, El Paso, Texas: I do not want to seem conspicuous, but think one of the greatest mistakes I ever made in my life was in doing an operation for frontal sinusitis. A great many years ago, an old doctor friend of mine sent for me to come down to his town, as he had a patient who had some trouble in the head over one eye, which had been diagnosed as frontal sinusitis. My friend, Dr. Brown, had exercised all his skill without any result, and the patient's brother, a preacher, had prayed all his prayers without result. I thought the best thing to do after looking at the patient and thinking it over was to trephine that sinus. Well! They had prayers before the operation; then I started in to make my incision. The trephine did not work very well and, rather than swear in front of this minister, I began to whistle. About ten or fifteen days later, old Brother Brown came to my town and had a talk with my druggist. He asked him if he knew this man Swope. "Oh yes," the druggist replied, "I know him well." "Well, he is the hardest-hearted man I ever saw," Brown remarked. "He bored a hole in a poor man's head and just whistled all the time."

THE SERUM TREATMENT OF LOBAR PNEUMONIA

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(Read before the New Mexico Medical Society, at its Forty-Ninth Annual Meeting, Albuquerque, N. M., May 22-22, 1930).

The recent acceptance by the Council on Chemistry and Pharmacy of the American Medical Association of concentrated antipneumococcus serum representing Type I of the pneumococcus, marks an important advance in the search for an effective specific serum for the treatment of pneumonia, which began back in the time subsequent to the discovery of the diplococcus of pneumonia and its identification as the causative agent of the disease. Various and many have been the preparations which have been tried out, but practically all of them have been discarded, for one reason or another, and none have achieved the recognition which is now being accorded the concentrated antipneumococcus serum made after the method of Felton.

The review of the literature is most interesting and instructive but to give this would occupy more time than is permitted to the discussion of this subject and, as the information can be secured from any one of a half dozen different sources, we shall confine ourselves to a discussion of our experiences with the preparation which we have just mentioned and with Huntoon's pneumococcus antibody solution.

In 1921, Huntoon sought to obtain pneumococcus antibodies freed of serum. "He suspended pneumococci of types I, II and II in a large amount of a trivalent serum which had been obtained from horses that had previously been inoculated with pneumococci of the types just mentioned. he bacteria, united with the antibodies, were removed by centrifugalization and washed free of serum with saline solution, emulsified in saline soluution containing 0.25 per cent bicarbonate of soda and heated from 30 to 60 mniutes at 55° C. The emulsion was then centrifugalized, the supernatant fluid was chilled and filtered through a candle. The filtrate obtained by this method is a clear, colorless fluid and contains only a minimum trace of serum and a high content of antibodies against pneumococcus type I and a very little of the antibodies for types II and III."

Our experience with this solution, though limited, was sufficient to make us discard it as a routine therapeutic measure. The especially large amount which was necessary at each dose was an objection in itself; but the intravenous injections of this solution were invariably followed by a severe chill, with marked cyanosis and dyspnea, followed in from 30 to 60 minutes by a rapid decline in temperature, with marked prostration, and in two of my cases with marked delirum amounting to what I would term a temporary insanity. Subsequent dosage produced the same chill and other train of symptoms, though in lessened degree, and, while the treatment appeared to be productive of results in securing the crisis from 24 to 40 hours earlier than usual, the convalescence appeared to be prolonged because of the great amount of prostration and a degree of nervousness which is not usual subsequent to a crisis in pneumonia. The value of treatment by this method was further lessened by the report of fatalities which occasionally followed the sharp reaction. We have had no experience with this preparation subcutaneously and have discontinued its use.

Our experience with the concentrated antipneumococcus serum is limited to three cases and we do not presume to speak with the voice of authority as a result of the knowledge gained from its use in our own practice, but the available and the ever-increasing favorable literature concerning the value of this serum in pneumonia due to type I of the pneumococcus family, is our excuse for bringing this subject forward in the hope that we might emphasize two or three of the points which are mentioned in the literature and which have been noted in the cases in which we have used the serum.

According to a table of Avery, Chickering, Cole and Dochez[2], 33.3 per cent of all pneumonia cases are caused by type I and 33.5 per cent by type II—hence, practically one-half of the cases of pneumonia are due to types I and II of the bacilli and it is in these cases that the concentrated serum of Felton finds its greatest usefulness. With this in mind, it follows that theoretically we should know the type of the pneumococcus which is causing the disease prior to administering the serum. Properly to determine the type is not an easy matter and for the general practitioner usually an impossibility, inasmuch as the method of determination calls for apparatus and technic which is not generally available, and this feature of the treatment must of necessity be left to the practitioner who is fortunate enough to be connected with some large general hospital or near to some well-equipped laboratory. The inability to secure the proper information as to type should not deter the physician from using the serum. As a matter of fact, in our opinion, there should be no delay in giving serum

even though there is no hope of ever securing the information as to the exact type. The concentrated serum should be given at once, with the knowledge that it has been found very effective in type I and less so in type II, and that these types are the most preferable ones. The best results are obtained when the serum is given early in the course of the disease. We do not believe that the serum should be withheld simply because the patient is gravely sick. "More gravely sick patients are saved with serum than can be saved without serum. Almost 40 per cent of the patients rated poor were saved with serum while we saved none of those rated as poor among those where serum was withheld."[3] The quotation just read is taken from an article by Bullowa, of New York, who also calls attention to the fact that patients suffering from asthma or who have a history of horse sensitiveness or who are definitely moribund, should not be given the serum.

The question of what constitutes effective dosage is a most important one. Our practice has been to give 10,000 units intravenously the moment the diagnosis has been established and to repeat this at intervals of from six to eight hours or longer, as the indications of each individual case demand. Park[4] recommends from 50,000 to 100,000 units during the first twenty-four hours, while Cecil and Sutliff[5] recommend 100,000 units in the first twenty-four hours. In our experience we have never had to use these large amounts, but it is reasonable to suppose that the later in the course of the disease that the treatment is begun, the larger will be the dosage required, and this is particularly true if the blood stream has been invaded by the organism, as larger amounts would necessarily be required to sterilize the blood stream and to conquer the disease than are necessary in the preblood-invasion stage.

Good practice in the administration of the serum is to precede its administration by a check on the individual's susceptibility to serum sickness and the conjunctival test has been found to be reliable.

In considering the effects of treatment on the disease, Cecil and Plummer[5], in a recent report of a study of 1,161 cases of pneumococcus type I pneumonia in which 473 are included in a therapeutic study of the concentrated antiserum made according to Felton method, demonstrated a reduction in the mortality rate from 31 to 20 per cent, and this was further reduced to 11.7 per cent in those cases in which the serum was administered within the first seventy-two hours after the onset of the disease. In the few cases which we have had, we have been impressed by the absence of the usual serum sickness and other reactions, and the authors above mentioned, after discussing the simplicity of the technic, refer also to the marked lack of the usual serum sickness and other reactions.

In addition to the possible limitation of the use of this antiserum because the average practitioner can not secure proper typing of the pneumococcus, there is the matter of cost. The average patient can ill afford, in addition to hospital, nurse, and physician's fees, the added cost of this serum. The average price of 10,000 units is $15.00. Assuming a 50,000 to 100,000 dosage in the twenty-four hours, followed by the necessary subsequent dosage, it is easy to realize how handicapped is the average patient, as well as the average physician.

CONCLUSIONS

1. Concentrated antipneumococcus serum is specifically indicated in all cases of pneumonia due to type I pneumococcus.
2. The average dose should be between 50,000 and 100,000 units in the first twenty-four hours.
3. The serum should be administered as soon as the positive diagnosis is made.
4. The earlier the diagnosis, the better the chances for good results.
5. The use of the antiserum is markedly free of untoward results when properly administered.
6. The high cost of the serum markedly limits its usefulness.

REFERENCES

1. Huntoon, F. M.; Mosucci, P.; and Hannum, E.; Antibody studies; chemical nature of antibody. J. Immunology, 6: 185, 1921. (Quoted in Practice of Medicine, Tice, Vol. III, p. 65.)

2. Avery, O. T.; Chickering, H. T.; Cole R; and Dochez, A. R.: Acute Lobar Pneumonia. Prevention and serum treatment. Monograph, Rockefeller Inst. Med. Research, No. 7, p. 18, 1917. (Quoted in Practice of Medicine, Tice, Vol. III, p. 8.)

3. Bullowa, Jessie G. M.: The Serum Treatment and its Evaluation in Lobar Pneumonia, Bulletin N. Y. Academy of Medicine, 5: 328-362. April, 1929.

4. Park, W. H.; Personal communication to Sutliff and Finland, J. A. M. A., 96, 1466. (May 2) 1931.

5. Cecil, R. L.; and Sutliff, W. D.: The treatment of lobar pneumonia with concentrated antipneumococcus serum, J. A. M. A., 91: 2035-2042. (Dec. 29.) 1928.

DISCUSSION

DR. F. D. VICKERS, Deming, N. M.: I enjoyed Dr. McBride's paper very much. It has been very difficult for me to find vaccines of much value on account of the reactions. Influenza vaccine I have found to be of use in cases of pneumonia, but in nothing else. In such cases I have had very good results with it.

DR. McBRIDE (closing): It was necessary for me, through lack of time, to restrict my paper to serum treatment and not touch on the question of vaccines. Certainly it would seem to me that anything that will reduce mortality from 31 to 20 per cent, as has been shown with use of the concentrated antiserum, is most worthy of consideration.

TRIBROMETHYLALCOHOL ANESTHESIA

P. L. TRAVERS, M.D.
Gallup, N. M.

(Read before the New Mexico Medical Society, at its Forty-ninth Annual Meeting, Albuquerque, N. M., May 20-22, 1931).

In this particular part of the country there are certain conditions to which this subject is peculiarly adapted. We particularly are in the need of modified anesthesia. In my limited experience here, postoperative pneumonia and other bronchial affections have made surgical procedures difficult and attended with more or less fear. After some investigation and at the suggestion of two very eminent surgeons of Baltimore and Washington, I have used the commercially so-called "Avertin," technically known as tribromethylalcohol compound, as a rectal basal anesthetic, with such delightful results that I cannot help expressing myself most enthusiastically in its favor. I do not want to be ridiculously radical, but in the interest of the patient, I must urge especially those of you who might be having difficulties following the use of general anesthetics, at least to investigate the real value of tribromethylalcohol as a basal or accessory anesthetic. In February, 1930, the Council of Pharmacy and Chemistry submitted a report to the Journal of the A.M.A. in which it does not advise the use of "Avertin" until further balance of the drug is established. A summary of the report was as follows:

"The Council recognizes the fact that avertin presents certain desirable properties but definite action concerning its recognition was postponed pending the result of investigations of certain of its side actions now being conducted. For the information of the medical profession the Council submits the following report concerning the present status of the drug:

"Avertin is tribrom-ethnol. CBr_3CH_2OH, a white crystalline substance. It was introduced in Germany by Willstaedter and Duisberg in the summer of 1926, to be used alone for rectal anesthesia or to be supplemented by other narcotics, including morphine and ether. It was supplied to a number of clinics, in which it was used experimentally. A superficial pharmacologic study of Eichholtz, made in the laboratory of the manufacturers, and a clinical report by Butzengeiger, were presented at the German Surgical Congress at Berlin in April, 1927.

"ACTION. Avertin depresses the respiratory center, lessening both frequency and volume; it depresses the vasomotor center, causing a fall of blood pressure. The depression of the respiratory center is the more pronounced; but when it coincides with the depression of the vasomotor center, it increases the danger, especially when it is used with morphine and other accessory narcotics. Killian states that avertin acts on the liver like chloroform. In 1928 he analyzed a number of reports of deaths from avertin and concluded that avertin injures the respiratory center more than chloroform or ether narcosis of equal depth. Killian severely criticizes Melzner, stating that the larger surgical clinics in general take a cautious attitude, some warning against it and some wholly denying its use.

"The advantages claimed for avertin liquid include: (1) Absence of irritation of the respiratory tract with less postoperative bronchitis and pneumonia. (2) Absence of direct injurious action on the heart, kidneys and other organs, with the possible exception of the liver. (3) Convenience for operations about the face, especially when a cautery must be used. (4) Usefulness in long operations when deep anesthesia is not necessary. (5) Less frequent vomiting than after ether or chloroform. (6) Lasting sleep after operation, frequently making it unnecessary to use morphine for the relief of postoperative pain. (7) Amnesia. (8) Absence of injury after repeated administration (as in tetanus). (9) Rapid elimination (employing less toxic action). (It should be understood that publications concerning "Avertin" refer in part to avertin alone, and in part to avertin liquid containing amylene hydrate).

"A preliminary report such as this can hardly be more than suggestive in view of the almost innumerable problems that are involved; but the foregoing presents the evidence concerning the drug which is at the present time available to the Council. Though the present evidence indicates that avertin may prove valuable as a means of initiating narcosis (so-called basis narcosis) but not for complete narcosis, the Council decided not to admit the drug to New and Nonofficial Remedies: (1) until satisfactory studies of its properties, its advantages and its disadvantages have been made; (2) until the contraindications have been satisfactorily established; (3) until a generally accepted technic whereby it can be used as satisfactorily as ether has been established; (4) until the action of the amylene hydrate in avertin liquid—whether by addition or by potentiation—has been determined and the amount declared; and (5) until the advertising has been revised to omit misleading statements contained in the present adver-

tising and especially to recommend the product only for initiation of narcosis (basis narcosis) and not for complete narcosis."

Since this report, however, this product has been more carefully arranged and the dosage has been accurately defined; over 150,000 cases of this anesthesia have been reported in the European literature.

WHAT AVERTIN IS

Avertin fluid (the only available form) is a solution of avertin in amylene hydrate, which dissolves avertin in high concentration and is itself readily soluble in water. Each cubic centimeter of avertin fluid contains 1 Gm. of avertin and 0.5 Gm. of the solvent. Amylene hydrate is volatile and inflammable (but not explosive).

Solutions of avertin in water must be prepared at moderate temperature, 95 degrees to 104 degrees F (35 degrees to 40 degrees C). At a higher temperature, hydrobromic acid is split off, and dibromacetaldehyde is formed. The latter produces marked irritation and even necrosis of the intestinal mucous membrane. This chemical change cannot occur when solutions of avertin are properly prepared.

SURGERY AND GYNECOLOGY

The present extensive literature embraces about 400 published articles, based upon experience in over 300,000 reported and published cases.

Preoperative preparation. The evening before operation the customary cleansing enema is given. It is not necessary to empty the intestine on the day of operation. In fact, it has been recommended that rectal irrigation be avoided a few hours before injection of the avertin solution, as the fluid which remains in the bowel may delay absorption. Even in emergency cases, avertin is effective without a preparatory enema. Before the operation, a hypodermic injection of morphine and atropine may be given, as with other anesthetics, although some operators object to this or consider it unnecessary. When extreme dehydration is suspected, it is suggested that 16 to 24 ounces of liquid be given orally during the night before operation, as in preparation for any form of anesthesia.

Dosage. Avertin is recommended solely as a basal anesthetic, to be supplemented by some general or local anesthetic. For basal anesthesia in general and special surgery, the maximum does is 0.1 c.c. (100 mg.) of avertin fluid for every kilogram, or 2.2. pounds, of body weight. The total amount of avertin fluid should not exceed 6 to 8 c.c. for women, nor 9 to 10 c.c. for men. For debilitated, cachetic or dehydrated patients and for obese persons, it is recommended that the dosage should not exceed 0.08 c.c. (80 mg.) of avertin fluid per kilo. As children are more tolerant to avertin than adults, no allowance need be made for youth in determining the dose. On the other hand, the basal narcosis may not be so deep, so that relatively more of the supplemental anesthetic is required.

The larger doses recorded in the earlier literature on avertin should not be employed. It is now recognized that such amounts were excessive in many instances and, together with the use of decomposed solutions, were largely responsible for ill effects and fatalities which occurred during the initial test period abroad.

PREPARATION OF SOLUTION

In the preparation of avertin solutions, the simple directions given below should be observed. It is particularly important to avoid heating the solution above 104 degrees F (40 degrees C), as otherwise hydrobromic acid and dibromacetaldehyde are formed, the latter having a markedly irritating action upon the rectal mucosa.

1. Heat the measured amount of distilled water to 104 degrees F (40 degrees C), using a glass receptacle that can be tightly closed (the ordinary Florence flask), with a capacity of 500 to 1000 c.c.

2.. Measure the dose of avertin fluid with a 10 c.c. graduated Luer syringe or pipet.

3. Add the avertin fluid to the water. Stopper the flask, invert, and shake vigorously until all globules of avertin fluid have disappeared.

4. Do not permit the solution to cool. (It may, however, be kept in a thermos bottle at body temperature for twelve hours.) If precipitation occurs from cooling, discard the solution.

5. Test the solution with Congo red before use.

Test before using. Immediately before injection, place 2 to 5 c.c. of the prepared 2.5 per cent avertin solution in a test tube and add 1 or 2 drops of the 1:1000 aqueous (not alcoholic) Congo red solution. A pure orange-red color should develop. If the color is, or becomes, blue or violet, the avertin solution should be discarded, as it has been decomposed and hence is dangerous. This is a reliable safeguard only when distilled water has been used to prepare the avertin solution. Therefore, ordinary tap water should not be employed. Milk, gum arabic, or other substances, should never be added until the solution has passed the test.

MANNER OF USE

The rectal injection of the 2.5 per cent solution of avertin at body temperature is given twenty to thirty minutes before opera-

tion, preferably in the patient's room. The administration is as simple as giving an enema, being made by means of a funnel with a male catheter at a slow rate (five to ten minutes).

During avertin narcosis per se, there is no increase of bronchial or salivary secretion, no gagging, nausea or vomiting.

If obstruction of the air passages is prevented, the breathing is quiet and regular, and the patient's color remains normal, as in natural sleep. To avoid respiratory difficulty and cyanosis from swallowing of the tongue, an "airway" of metal or firm rubber tubing should be inserted as soon as narcosis is complete, and left in place until the patient awakes. Otherwise, the patient's head should be kept low and on its side. If respiratory depression or cyanosis occurs, it is usually overcome readily by a few whiffs of ether. In severe cases, oxygen (with or without a little carbon dioxide) is indicated, to be supplemented by an injection of ephedrine (but not epinephrine), caffeine sodiobenzoate, or atropine.

Within about twenty minutes, the patient can be transported to the operating room. The duration of basal narcosis with avertin varies from one and one half to two hours or more. It is most profound during the first thirty to forty-five minutes, and then gradually decreases in intensity.

SUPPLEMENTAL ANESTHESIA

If reflex movements are elicited by pinching the skin with forceps while the patient is in the anesthesia room, or subsequently during the application of iodine, towel clips, and so forth, in the operating room, a little ether, ethylene or nitrous oxide should be given. To secure complete muscular relaxation during the operation, some additional ether or other inhalant is required. A few whiffs may again be necessary from time to time, and before insertion of the sutures. In the majority of cases, the total amount of inhalation anesthetic employed during the entire operation has been computed as less than half of that ordinarily demanded. When using nitrous oxide or ethylene, the amount of oxygen in the mixture is advantageously increased, often to exceed the percentage of the anesthetic gas.

In operations about the head and face, the inconvenience of the ether or gas mask can be avoided by giving the supplemental anesthetic only at intervals. In electrosurgery, the risk of explosion can also be obviated by this method.

Local anesthesia by infiltration with 0.5 per cent novocaine solution has also been employed in combination with avertin basal narcosis.

POSTANESTHETIC STAGE

The patients usually leave the operating room dry, pink, and warm. Shortly after regaining consciousness, they again fall into an agreeable sleep during which postoperative pain is not experienced and from which they are readily aroused. This sleep persists for several hours. A welcome feature is the amnesia. "Even though the narcosis has been very light, there will be no memory of anything from the time of injection. Further, the events of the next twenty-four or thirty-six hours will not be remembered with any clearness, and the whole horrible business of being anesthetized and of recovery is thus not only diminished in fact, but is minimized in retrospect." (Edwards).

Postoperative excitement is of rare occurrence or so slight that it promptly yields to an injection of morphine. As nausea and vomiting are virtually absent following avertin basal anesthesia, water and liquid nourishment can be given soon after operation. The occurrence of abdominal distention and colic is infrequent. The incidence of postoperative pneumonia and bronchitis is diminished. If the prescribed directions for the preparation of solutions are followed, no irritation of the normal intestine is produced by avertin.

CONTRAINDICATIONS

Avertin basal anesthesia has been used in practically all branches of surgery, for operations on the head, neck, breast, chest, abdomen, pelvis and extremities, in adults and children.

Contraindications are severe organic disease of the liver, serious bilateral disease of the kidneys, lesions of the rectum, acidosis, starvation, severe blood diseases, and grave cachexia, in all of which the use of the inhalation anesthetics is also hazardous.

OBSTETRICS

In obstetrics, use table No. 4: dosage, 60 mg. per kilo. body weight. From one-half to one hour before its administration, 1/6 to 1/4 grain of morphine is injected subcutaneously.

The avertin enema is given about one and one-fourth hours before the anticipated delivery, i.e., when the cervix is dilated and the head of the child is below the pelvic brim. To avoid expulsion of the solution, the catheter is introduced above the child's head. It is sometimes advantageous to allow the fluid to run intermittently between pains, instructing the patient to bear down as little as possible. If the pressure of the child's head occludes the catheter, insert one finger in the rectum, pushing head up between pains and inserting tube as possible. The effect is established in about 15 minutes and

lasts for one to two hours. Occasionally, a second or even a third injection of a smaller amount (20 to 30 mg. per kilo.) may be necessary after an interval of three to four hours. Uterine contractions are less frequent and may be slightly diminished in force. Small amounts of a supplemental anesthetic are usually indicated for the third stage or for any required perineal repair.

Eclampsia. Avertin has also been tested in eclampsia, in doses of 80 to 100 mg. per kilo. The attacks become less frequent and milder, and finally cease.

Dosage Table No. 1.

Basis: 100 milligrams per kilogram of body weight.

Dosage Table No. 2.

Basis: 90 milligrams per kilogram of body weight.

Dosage Table No. 3.

Basis: 80 milligrams per kilogram of body weight.

Dosage Table No. 4

Basis: 60 milligrams per kilogram of body weight.

In tribromethylalcohol we have an anesthetic which produces unconsciousness in a most satisfactory manner. When combined with light gas anesthesia, the relaxation is usually adequate. The duration of the anesthesia is sufficiently prolonged, and no unpleasant postoperative complications have been observed.

Without attempting comparisons with other anesthetics, we believe tribromethylalcohol is entitled to a very high rating in respect to safety. Deaths have been reported under its use, but these were due almost entirely to improper administration or overdosage, both of which errors are now being eliminated by riper experience. While the relatively small number of our cases does not permit us to speak authoritatively, from our general experience with gas, ether, and their combinations, we do not hesitate to express the opinion that tribromethylalcool is equally as safe.

Although ether anesthesia produces unconsciousness, it apparently protects none of the brain cells against exhaustion from the trauma of operation. The anesthetic gases are said to produce about one-fourth the exhaustion after equal trauma, according to Gwathmey. It is impossible to estimate the amount of damage inflicted by the psychic shock in some patients, particularly children, immediately preceding and during the induction of anesthesia. With preliminary morphine medication, the proper dosage of tribromethylalcohol, light gas anesthesia, and infiltration with novocain, perhaps the most complete brain block is produced.

ACTION

When injected into the rectum, tribromethylalcohol is absorbed by the intestinal mucosa more rapidly than the water in which it is dissolved. The absorption is fairly rapid, totaling 80 per cent in the first twenty minutes, and 95 per cent within the first two hours. No local irritation of the rectal mucosa has been observed from the use of a properly prepared and tested solution. During anesthesia the concentration of tribromethylalcohol in the blood is 6 to 9 milligrams per cent.

Detoxication of tribromethylalcohol occurs in the liver through the formation of a compound with glycuronic acid, the resulting product being eliminated by the kidneys.

Respiration is superficial in tribromethylalcohol anesthesia, but in cases of dyspnea, the respiratory center is not materially affected. The heart is evidently not influenced by the average anesthetic dose. The pulse rate is practically normal and there is usually little change in blood pressure, although occasionally a fall up to 20 millimeters occurs.

ANESTHESIA

The outstanding feature which makes tribromethylalcohol a remarkable agent is the ease with which anesthesia is produced. No anesthetic with which we are familiar approaches it in this respect. It is now possible to produce unconsciousness without the patient being aware that an anesthetic is being given. The patient falls asleep in three to ten minutes without mental or physical excitation, and usually recalls the experience only vaguely, and then as a pleasant one. Thus, surgery has been divorced from much of its terror. Tribromethylalcohol is a boon to the excitable and apprehensive patient, and especially to children. It has filled a great void in pediatric surgery. A child is given the small tribromethylalcohol enema in bed without any disturbance, and in a few minutes falls asleep without excitement and without being aware of the impending operation.

We have not found it necessary to stop the anesthetic or to resuscitate a patient in our series. On the other hand, we have been impressed by the freedom from cyanosis (the patient being watched carefully to prevent mechanical obstruction), sweating, and marked fall in blood pressure, which are common with other anesthetics.

Patients who previously had seven or eight anesthetics stated that they experienced much less discomfort with tribromethylalcohol and preferred this type of anesthesia.

Hemorrhage during or immediately after operation has never been a source of concern.

Not a single patient has complained of rectal irritation, nor have the nurses recorded sanguineous or mucous discharge from the bowel. Three patients have had three successive tribromethylalcohol anesthetics within seven to ten days without untoward effects.

There has been no unusual delay in healing of the wounds, and the patients, generally, have left the hospital on the appointed day.

Dr. Charles S. White says: "In only 22 per cent was nausea or vomiting present. This is a very much lower percentage than we have had in ether or gas anesthesia. It is especially well tolerated in hyperthyroidism. In the presence of hyperthyroidism it has been suggested that the delayed elimination might be hastened by the administration of thyroxin. The dosage has been conservative, no effort having been made to complete anesthsia with tribromethylalcohol alone, as this was deemed unwise and not without danger. Marked cyanosis has not occurred in any case. This is attributed to the fact that we used a light dosage, the patients have been watched carefully, and a clear air-way has been maintained at all times."

CONCLUSION

Anesthesia can be induced with tribromethylalcohol in an almost ideal manner. Convalescence is more comfortable and there is less nausea and vomiting than with other general anesthetics. In our opinion, tribromethylalcohol has a definite place among the anesthetic agents now available.

A review of the foreign literature leaves one confused if an effort is made to evaluate tribromethylalcohol as a general anesthetic. When used alone for deep anesthesia, its use is attended with danger, but when used as a basic anesthetic, it is probably one of the safest agents for anesthesia. We feel that the use of tribomethylalcohol with gas or novocaine, combines in the highest degree excellence and safety in anesthesia.

We stress the fact that no anestheic is absolutely safe, and the same precautions should surround the administration of tribromethylalcohol that attend the use of any other anesthetic. Carelessness will be penalized by morbidity and mortality. A conscientious regard for the safety of the patient demands the services of a well-trained anesthetist in every major operation.

DISCUSSION

DR. W. H. WOOLSTON, Albuquerque, N. M.: Personally, I have never used tribromethylalcohol, but have talked to men who have used it and they did not seem very enthusiastic about it. Anything that would improve our type of anesthesia would be very welcome. Many peoplee with tuberculosis cannot undergo the ordinary general anesthetic. Spinal anesthesia is coming back into use again, and as far as my experience with it is concerned, it has been satisfactory. Sodium amytal has been used but resolves itself into a preliminary anesthetic.

DR. F. D. VICKERS, Deming, N. M.: I have been using tribromethylalcohol and have been most favorably impressed with it. Dr. Travers has certainly covered the ground very thoroughly in his paper. However, I do not think its use is entirely free from danger. I had one case recently where I did not give a full dose. We were all ready to begin the operation and found the patient had stopped breathing. We had to do artificial respiration and finally brought her back all right, but did not operate. I once had the same experience with ether in a tonsillectomy case. I had a tuberculous patient recently, with acute appendicitis, and performed operation under gas oxygen. She went to sleep, appendix was removed and she was carried back to her room, where she slept two or three hours.

DR. E. F. FRISBIE, Albuquerque, N. M.: I should like to ask Dr. Travers how tribromethylalcohol compares with sodium amytal.

DR. TRAVERS (closing): I believe if Dr. Woolston would give tribromethylalcohol a trial, he would be pleased with the results. As a rule, within twenty minutes after its use, the patient is sound asleep. Sodium amytal will not put one to sleep so easily.

A RESUME OF DIET THERAPY

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(Read before the New Mexico Medical Society, at its Forty-Ninth Annual Session, at Albuquerque, N. M., May 20-22, 1931.)

In conducting a tuberculosis sanatorium where the attending staff doctor is not only physician to his patient, but also host, and has the responsibility and absolute control of all the minor activities and details of the patient's daily life, one cannot help but feel impressed and become interested in the numerous fads, fallacies and vagaries of diet.

Science and research are adding daily to our knowledge of diagnosis, treatment, and the diet of the sick. Our progress is so rapid that it is difficult to keep in touch with it all. Especially intensive is the inquiry in the field of nutrition. In many dietary cases, as well as in the entire medical field, we can proceed with a certainty today which a few years ago was purely experimental. At the time of the ancients, the sick were taken to the public bath or pool, or to the important highways, and left there so that passers-by might offer advice and counsel. And even today the average patient is the recipient of much advice—far too much—on the part of friends and relatives.

When primitive man's use of reason had progressed to such a stage where he was

able to supply himself with plentiful quantities of food, he began to be particular, and his troubles as a result of faulty diet started. Today, with our civilization and its sedentary occupations, these troubles have multiplied. Professor Evvard, experimenting with hogs at the Iowa State College, found that if various grain and mineral rations were placed in open bins accessible to the hogs, they would themselves choose the ones that gave optimum growth and development. Unfortunately, man is governed chiefly by his desires and he usually does not choose so wisely. Then, today, he is constantly bewildered by the food faddists and others who have something to sell. Sometimes, though, it is the physician who errs, as is evidenced by the not uncommon occurrence of scurvy in gastric ulcer patients, who have been put on a pasteurized milk diet.

The yeast fad is an outstanding example of the distortion of partial truths into misleading statements, and of the vitamin hysteria with which we are afflicted. The yeast companies of today emphasize the need for vitamins B and D in the dietary, and recommend the use of yeast three times a day for nearly every human ailment. The fact that yeast may be beneficial in some conditions is definitely established, but, since these vitamins are found to be plentiful in the average dietary, surely it is unnecessary to recommend the indiscriminate use of yeast as a panacea. Much can be said about the vitamin fad which is so popular today, but I can best quote from a recent article by Dr. Alvarez: "The future historian of medicine is going to be somewhat puzzled when he comes to write up the story of the vitamin mania of the twentieth century. He will wonder what could have so frightened the dietitians that they should have behaved each day as if a moment's relaxation of vigilance would plunge all their adult patients into the throes of scurvy, beriberi, pellagra, and xerophthalmia.

"Perhaps one reason they fear these diseases is that they never have seen them and do not know what they are.

"Strange as it may seem, there is no shadow of an excuse for giving roughage when one wants to supply vitamins or chemical elements. One can get more than enough vitamins 'A' in butter, more than enough of the two 'B's in a little yeast or extract of wheat kernel obtainable in a drug store, more than enough 'C' in a little orange, and more than enough 'D' in a little tablet of concentrated cod liver oil or irradiated ergosterol.

"Iron may be obtained in many foods besides wheat and spinach. Even the green chlorophyll of plants now can be obtained in tablet form, so there is no real need for the appearance each day of spinach on every sick tray in ever hospital in the land.

"In most cases, as when a patient is going to be in the hospital for two or three weeks after an operation, it is only a thoughtless or ignorant person who would worry about the vitamin content of the diet. Every one who eats sensibly has enough vitamins stored in his body to tide through a few weeks or even months of semi-starvation."

Then we have those who believe that pork is so indigestible. It is interesting to note that beef leaves the stomach in two and a half to three hours, regardless of the method of preparation, and that pork and lamb leave the stomach in about the same time. In Europe, the prevalence of pork trachina is very high and it is considered an unhealthful meat to eat because of this. In this country, trichinosis is almost unknown, due to our excellent inspection of meat by the United States Department of Agriculture, and to our methods of cooking. Next, the notion has spread that pork is unclean meat because one frequently sees pigs being fed slop and living in filthy sites. The fact is, however, that the chicken is frequently dirtier than the pig.

It is true that some people do not digest fat well, and cannot tolerate pork. Because one member of a family cannot eat pork, the rest frequently think that it is unhealthful also for them.

The "dangerous food combinations," or the "acid starch" danger theory still has its promoters despite the fact that there never has been the slightest proof that foods, when taken alone, can be more harmful than when taken together in any combination. The adherents of these theories believe that harm may come from combinations of starch foods, such as cereals, with acid fruits, and believe the theory that acid prevents the starch-splitting action of saliva, despite the fact that there has never been the slightest proof that fruits, such as orange or grapefruit eaten with cereals and milk, are harmful. Nor is there any scientific reason for restricting the diet or avoiding the acid fruits in connection with the use of calomel.

In the same category are those who expound on the harm that comes from the mixture of protein and starch foods, despite the fact that meat and potatoes have been for generations the most important items of our diet, and we as a race seem to have thrived fairly well on it.

Another popular misconception is that

fresh vegetables are better than canned. Recent work has shown that canned vegetables and fruits are better than fresh vegetables and fruits as cooked by the average housewife. The canneries are usually located close to the source of supply, so that the vegetables can ripen in the normal way. Then they are put in the individual can, with water added, sealed, and cooked in the vacuum, which does not require such a high temperature, and which prevents oxidization. The housewife, on the other hand, usually gets them from the market too ripe or not ripe enough, and then she adds a lot of water and cooks them. This cooking at room atmospheric pressure destroys the vitamin, and then the cook frequently throws away the water which contains the minerals, so that, when her dish is put on the table, it is mostly cellulose and most of the minerals and vitamins are gone.

The propaganda for whole-wheat bread still flourishes. Its advocates attribute many of the ills of mankind to milling of the grain which removes the bran. They assert that white bread is thus deprived of important vitamin constituents, ignoring the fact that these elements are supplied when bread is made with milk and eaten with butter, and in other constituents of the diet. Today, the necessity for the use of bran is over-emphasized. Bran is indigestible and irritating. Too much of it will produce a colitis. As a constituent of the diet it is not necessary for the well nor ideal for the sick. The cellulose of cooked vegetables has much more to commend it.

Cooked foods are more digestible. Cooking of vegetables causes the starch cells to burst, under the influence of heat, and so permits a more ready access of the digestive juices to the starch. Breads and cakes are made light by the expansion of the contained gases, and the water vaporizes to make the mass still lighter. While this reaction is going on, the albumins coagulate and fix the bread in this light state. The carbohydrate on the surface is partly caramelized, which gives the whole a more attractive appearance and flavor, and thus makes it more digestible.

Hot breads are usually considered to be indigestible but are well borne if they are light, well made, and eaten slowly. This is also true of pies, if the crust is crisp and not soggy.

When meat is cooked, the connective tissue is loosened, making the meat more easily chewed and more easily accessible to the digestive juices. Excessively prolonged cooking, however, has just the opposite effect.

Fats and oils in moderation are ordinarily well borne. Fried foods are usually well digested if they are fried in "deep fat," which quickly produces a crusty coagulum on the surface and so prevents the penetration of fat to the interior of the food. If they are soaked in grease they are indigestible because the fat prevents ready access of the digestive juices.

Mineral oil, which is commonly used for constipation, is indigestible and acts as if the food were fried in thick cold grease.

Cheese, if eaten slowly at mealtime as a protein food, is easily digested. Its reputation for indigestibility has been established by the fact that it is ordinarily eaten late at night, between meals, or at the end of a heavy meal, when the full amount of protein has already been taken.

Candy and concentrated sugar solutions irritate the stomach and interfere with secretory and motor activity. If taken in small amounts at the end of a meal they do no harm and give one a feeling of satiety.

A cup of tea and a cup of coffee contain approximately the same amount of caffeine, and are objectionable because of this caffeine. It is also possible that the aromatic oils in coffee may be irritating to the stomach, but there has been no proof that either tea or coffee in moderation is harmful for a normal individual.

Chocolate contains the bromine, which is closely related to the caffeine in tea and coffee, and is irritating to the gastro-intestinal tract.

Another much discussed question is whether one should or should not drink water with the meals. Drinking fluids with one's meals usually means that the food is eaten hastily, and is not chewed well, and so is not desirable with ptotics. With a normal individual, however, a moderate amount of fluid at a meal would seem to be desirable because the digestive enzymes work better in diluted fluids.

In discussing specific diets it is best to consider first the normal and then proceed to the diets in disease.

The calories required by the average normal adult, when at rest, are about 25 per kilogram body weight. In general, the average man weighing approximately 154 pounds needs 1750 calories daily to keep him alive, 2100 to 2450 calories at rest, 2800 to 3150 for light exercise, and 3500 to 4200 and up for laborers. Women need approximately 500 calories less. As a rule it is not necessary that a person's requirement be estimated to a nicety, and if the diet approximates the above requirements it will be satisfactory.

The necessary substances in a normal

diet, their best sources, and the results of failure to supply the necessary substances in a diet are best shown by the following table:

ADEQUATE DIET

Substances essential in an adequate diet:	Some foods which may be considered sources of these essential substances.	Some effects of the lack of these essential substances:
Oxygen	Air.	Failure of the nerves to function—fainting.
Water	Water, milk, beverages, almost all foods.	Thirst, renal impairment, dehydration fever.
Proteins (Amino acids)	Milk, meat, eggs, legumes, grain, animal protein. The second best source is nuts, peas, beans, lentils (legumin) cereals, soy beans. The vegetable proteins must be supplemented with milk, however.	Failure to grow; loss of weight; lowered stamina and vitality.
Carbohydrates	Starches, sugars, syrups, grains, tubers, fruits, milk, honey, molasses (also contains minerals), flour, cereals, grains, bread, macaroni, tapioca, cornstarch, cakes, cookies, pastry, potatoes, dried fruit, canned fruit, bananas, grapes, and plums.	Lack of energy for work and growth.
Fats	Butter, lard, egg yolk, fat meat, vegetable oil, margerines, milk, oils, cream, cod liver oil, salt pork, bacon, suet, and other cooking fats, fish, nuts and olives.	Lack of energy for work and growth.
Minerals	Milk, outer coat of grains, green leaves, meats, mineral mixtures.	The following three chief functions of the minerals are interfered with:
Iron	Red meats, visceral organs (liver, kidney, and stomach), green vegetables, egg yolk, molasses, dried fruit and whole grain.	(1) They contribute overwhelmingly to the supporting framework of the body, the bony structure.
Calcium	Milk, cheese (100 grams contains .930 grams), oatmeal, peas, beans and lentils.	(2) They take part in the formation of many organic compounds, such as nucleoproteins and phosphatids and thus form an integral part of the cell structure; every cell contains mineral elements.
Phosphorus	The phosphorus in the diet will be all right if the calcium is.	(3) They circulate, in the body fluids in various combinations, in this way preserving the osmotic tension of the plasma necessary to life as well as regulating neutrality.
Cellulose or roughage	Fruits, vegetables, and whole grain primarily.	Constipation.
Vitamins:		
A	Butter, egg yolk, milk, green leaves, yellow grains, yellow tubers, liver and liver oils, cream, spinach, carrots, tomatoes,	Stunted growth, xerophthalmia, nervous symptoms, lowered resistance to colds, bronchitis, pneumonia, tuberculosis and other infections.
F	lettuce, cabbage, cauliflower, and cod liver oil.	
B	Outer coverings and germ of grains, yeast, tubers, milk, eggs, fruits, leaves, fresh meat, whole grain,	Polyneuritis, beriberi, digestive disturbances, and pellagra.
G	vegetables, yeast and liver.	
C	Fresh fruits, fresh leaves, fresh tubers, milk, tomatoes and citrus. It should be remembered that this vitamin is destroyed by cooking and pasteurizing.	Scurvy.
D	Codliver oil, egg yolk, milk from cows receiving direct sunlight, eggs from hens receiving direct sunlight, substances irradiated with ultra violet light. Ultra violet light will cause the development of this vitamin in the animal body.	Rickets, failure to utilize calcium and phosphorus of food, resulting in nerve, muscle, and bone disorders. Predisposed to tuberculosis, especially the bone type.
E	Grains, especially wheat germ, liver, leaves.	Anemia, sterility, paralysis in young.

From the practical standpoint, the normal daily diet should contain one pint of milk, two servings of green vegetables—one raw, one serving of fruit raw, two servings of protein foods and of foods from the carbohydrate and fat group.

In attempting to compute any diet it is necessary to have a table of food values similar to that of Joslin and others as follows:

Foods arranged approximately according to content of carbohydrates:

5%		10%	15%	20%
Reckon average carbohydrate in 5% veg. as 3%, of 10% veg. as 6%.				
1%-3%	3%-5%	10%	15%	20%
Lettuce	Tomatoes	String Beans	Green Peas	Potatoes
Cucumbers	Brussels Sprouts	Pumpkin	Jerusalem Artichokes	Shell Beans
Spinach	Water Cress	Turnip	Parsnips	Baked Beans
Asparagus	Sea Kale	Kohl-Rabi	Lima Beans (very young)	Green Corn
Rhubarb	Okra	Squash		Boiled Rice
Endive	Cauliflower	Beets		Boiled Macaroni
Marrow	Egg Plant	Carrots		
Sorrel	Cabbage	Onions		
Sauerkraut	Radishes	Green Peas (very young)		
Beet Greens	Leeks			
Dandelions	Strong Beans (very young)	Strawberries	Raspberries	Plums
Swiss Chard	Broccoli	Lemons	Currants	Bananas
Celery	French Artichokes	Cranberries	Apricots	Prunes
Mushrooms		Peaches	Pears	Ice Cream
		Pineapple	Apples	
		Blackberries	Blueberries	
		Oranges	Cherries	

Ripe Olives—(20% fat).
Grapefruit

1 gram protein .....4 calories
1 gram carbohydrate .....4 calories
1 gram fat .....9 calories
6.25 gram protein contain 1 g. nitrogen.

1 kilogram=2.2 pounds.
30 grams (g) or cubic centimeters (c.c) =1 ounce.
Household measures:
1 flat teaspoonful=5 grams.
1 flat tablespoonful=15 grams.
1 heaping tablespoonful, cut meat or fish=30 grams.
1 water glass full=250 grams.
1 egg weighs 50 grams.

A patient "at rest" requires 25 calories per kilogram body weight.

30 Grams 1 oz. Contain	Carbohydrates app'xm'tly g.	Protein Grams	Fat Grams	Calories
Vegetables 5%	1	0.5	0	6
Vegetables 10%	2	0.5	0	10
Shredded Wheat (6 triscuits)	23	3	0	104
Uneedas, two	10.	1	1	53
Potato	6	1	0	28
Bread	18	3	0	84
Oatmeal dry wt.	20	5	2	118
Oysters, six	4	6	1	49
Milk	1.5	1	1	19
Meat (cooked, lean)	0	8	5	77
Fish	0	6	0	24
Chicken (cooked, lean)	0	8	3	59
Egg (one)	0	6	6	78
Cheese	0	8	11.	131
Bacon	0	5	15	155
Cream, 20%	1	1	6	62
Cream, 40%	1	1	12	116
Brazil Nuts	2	5	20	208
Butter	0	0	25	225
Oil	0	0	30	270

Foods Without Food Value. May be taken as desired: Agar agar, Clear Coffee, Cocoa shells, Mineral oil, Starch free bran cereal, Broth (skimmed), Clear tea, Cracked cocoa, Starch free bran biscuits, Thrice boiled vegetables.

DIET IN DISEASE

Diabetes: One of two procedures is indicated. First: An attempt should be made to cut down the potential glucose in the diet, and it should be remembered that protein and fat will give glucose. A normal diet can be given and the deficiency made up with insulin to take care of the carbohydrate and to keep the urine sugar free. The diet, or insulin, must usually be kept up forever.

Obesity: High carbohydrate and fat should be left out and green vegetables of 5 per cent carbohydrate group, as lettuce, cucumbers, spinach, asparagus, sauerkraut, celery, tomatoes, cauliflower, eggplant, string beans and so forth, should be supplemented.

Underweight: The diet should be a normal diet, plus carbohydrates and fats, as milk, sugar, frosted cakes, cheese and crackers, peanut-butter. It is interesting here to note that obese patients seem to be better satisfied with three regular meals, rather than frequent feedings.

Spastic Constipation: This should be a normal diet, except that the roughage or cellulose is broken up by cooking and the fruits, and so forth, pureed.

Atonic Constipation: The diet should be a normal one plus increased vegetables and fruits. Green vegetables, or roughage, at supper helps for a bowel movement in the morning.

Stomach Ulcers: This diet should be similar to the one used for spastic constipation, the attempt being to prevent mechanical irritation. Vitamins B and C are important, and in order to be sure that they are plentiful, strained diluted orange juice and dried yeast should be taken.

Pernicious Anemia: A normal diet plus large amounts of liver. The liver must be kept up forever.

Secondary Anemia: A normal diet with plenty of eggs, red meat, and vegetables.

Nephritic: A normal diet, but limit the salt, and the proteins should be low. Never give a nephritic a salt shaker at the table.

Nephroses: Give a high protein diet.

Pregnancy: A normal diet with plenty of milk, fruit and vegetables. Milk supplies calcium, phosphorus, and a good quality of protein in addition to the vitamins, and so forth. One should have a quart of milk in addition to the normal diet, daily.

Ulcerative Colitis, Dysentery, Diarrhea: The diet should be low in roughage, that is, fruits, vegetables, whole grains, cereals, bread. Should have liver, strained orange juice, strained fruits and vegetables. Proteins should be increased with eggs, meat and cheese. Fat and carbohydrates should be decreased. Sugars ferment and form gas. Avoid tea and coffee, spices, and foods that are either too hot or too cold

Allergy, Hypersensitiveness, Idiosyncrasy: The diet should consist of rice, beef, butter, and sugar for a few days until symptoms are gone. Then gradually add other articles and watch for symptoms.

CONCLUSION

In computing diets, it is best to determine first the normal and then add or subtract individual items as necessary for the case under consideration.

The caloric requirements need not be calculated to a nicety, and from the practical standpoint, the normal daily diet for an adult should contain one pint of milk, two servings of green vegetables, one raw, one serving of fruit, raw, two servings of protein foods and of foods from the carbohydrate and fat group.

BIBLIOGRAPHY

Garean, U.: Evolution of Man's Diet, Canad. M.A.J., 16, 1241 (Oct. 1926).

McLester: Nutrition and Diet in Health and Disease, Saunders, 1929.

Harrop: Diet in Disease, Blakiston, 1930.

McCollum, and Simmonds: The Newer Knowledge of Nutrition, Macmillan, 1929.

Joslin: Diabetic Manual, Lea and Febiger, 1929.

Stone, W. J.: Dietary Facts, Fads and Fancies, J. A.M.A., 95, 709 (Sept. 6, 1930).

Diet Lists of the Massachusetts General Hospital, 1926.

U. S. Department of Agriculture Bulletin No. 28: The Chemical Composition of American Food Materials.

U. S. Department of Agriculture Farmer's Bulletin No. 1313: Good Proportions in the Diet.

Delf, E. M.: Cooking and Vitamines, Science Progress, London, 15, 601, 1921.

Kohman, E. F.; Eddy, W. H.; Carlson, V.: Vitamins in Canned Foods, Industrial and Engineering Chemistry, 16, 1261, 1924.

Eddy, W. H.; Kohman, E. F.: Vitamin C in Canned Foods, Industrial and Engineering Chemistry, 16, 52 (Jan. 1924).

Alvarez, W. C.: Mechanics of Digestion.

Dale, J.: Thornburg, H. D.: Diets for the Identification of Food Allergy, J.A.M.A., 93, 505 (Aug. 17, 1929).

Rome, A. H.: Food Allergy, J.A.M.A., 91, 1632 (Nov. 24, 1928).

Alvarez, W. C.: The Progress of the Food Through the Bowel, J.A.M.A., 82, 1887 (June 7, 1924).

Worner, M. T.: Dietary Problems in a Tuberculosis Sanatorium, Colorado Med. 28, 18 (April, 1931).

DISCUSSION

DR. CURTIS ROSSER, Dallas, Texas: I should like to have an opportunity to discuss this paper because I think it is a well balanced one and because I feel that no paper along these lines should pass without some discussion. Apparently the exciting spur in the great human race is a three-fold collection of S's—spirits, sex, sustenance. The search for sustenance is a continuous spur and brings with it the problem of what to eat. There have been some very important scientific investigations made in connection with the subject of diet, but along with them there has been a hook-up of commercial interests. The question of diet has become as much a commercial item as Christmas is with the department stores. Most of us do what the advertisements and magazines tell us to do, and therefore we are on a diet ranging from sunkissed oranges to all kinds of bran and yeast. As a matter of fact, Battle Creek is probably responsible for the origin of much of this advertising campaign, but what is good for the king's horses is not necessarily good for the king's men. Mother may have made you eat carrots back in the old days and now the wife makes you eat spinach, and now we take a Lucky Strike instead of a sweet. Last month the Texas Legislature put a tax on cigarettes and now we will have to go back to the sweets. These fads do not seem to accomplish anything except perhaps some of our patients are getting too much dieting, especially along certain lines, and in my opinion we are going to have to fight to keep this thing down.

DR. R. O. BROWN, Santa Fe, N. M.—I found the paper very interesting indeed and think that there is a great deal of misapprehension as to what to do when we put food in our mouths. The greatest error that is indulged in is not in eating insufficiently, but in very frequently eating far too much. I have been very much interested in the work of the Sansom group at the Santa Barbara Hospital, and to my mind their theory seems to

work out better than anything else in connection with a properly balanced diet.

DR. S. L. BURTON, Albuquerque, N.M.: I was very much interested in Dr. Gellenthein's paper and in Dr. Rosser's talk. I think we are all guilty of not doing what we should do in assisting our patients to diet, but I think we shoulld use judgment in showing them what they should eat and seeing that they get it in the right proportion.

DR. GELLENTHEIN, in closing, related incidents in connection with the introduction of cocoa and other foods in bygone days.

INJECTION TREATMENT OF VARICOSE VEINS.

J. L. MURPHY, M. D.
El Paso, Texas

(Read before the El Paso County Medical Society, El Paso, Texas, May 25, 1931.)

The purpose of my paper may be briefly summarized as follows: First, to present the past and present knowledge of the injection treatment of varicose veins; second, to enumerate the solutions most commonly used at the present time; third, to outline the technic of the injection method; fourth, to summarize the indications and contra-indications to treatment; fifth, to emphasize the rationale of this method of treatment; and last, to emphasize its practical use.

In discussing the history of the injection treatment of varicose veins, it is only necessary to go back as far as the history of the hypodermic syringe. In 1945 Rynd, a French physician, introduced the syringe as a method of administering medication hypodermically and intravenously. In 1853 it was Pravaz who popularized the syringe method of administering medicine and who was the first to observe the obliteration of veins by injection of caustic solutions. He, in collaboration with Chassaignac, did considerable work of obliterating varicose veins with ferric chloride solution, which was indeed very irritating and not altogether satisfactory. Among the other solutions used by various men of the times were iodo-tannic liquor, red iodide of mercury, tincture of iodine, five per cent alcohol and five per cent phenol. It must be remembered that this was the time when Pasteur and Virchow were just introducing bacteriology and pathology; hence, asepsis was practically unknown and hazardous comp'ications, such as sloughs, thrombosis, gangrene, embolism and septicemia, were common. This then led the Surgical Congress of Lyon in 1894 to hold the method too dangerous and impracticable. Little more work was done upon the subject until 1911, when Blum, in treating diabetic coma with intravenous injections of sodium bicarbonate, observed the obliteration of veins without inflammation, pain, or embolism. From this time until 1921 the injection treatment of varicose veins may truly be said to have passed through its renaissance. Lisner, in the treatment of syphilis, noticed that mercuric chloride gave satisfactory obliteration of veins, and in 1922 he changed to sodium chloride because mercuric chloride in large doses gave systemic reactions. Sodium chloride at the present is in very common use. During the war, it was Sichard who put the injection treatment on a rational basis, and to him must be given credit for the restoration of a very valuable surgical procedure which was started by Pravaz some seventy years before. Sicard's observation resulted from the use of alkaline solutions with their excellent sclerosing properties in the veins of the arm. In 1921 he introduced sodium salicylate, which is also a very commonly used solution at the present time. By 1924, he reported thousands of cases and no fatalities. The results of these French workers soon spread to England, Sweden, Austria, and this country. Forestier, in 1928, reported five thousand cases of varicose veins treated with various solutions and no embolism or fatality resulting. At the present time many clinics in this country have entirely done away with operative measures and are using altogether the intravenous method.

In order to understand this method of treatment we must briefly recall the anatomy and physiology of the circulation in the lower extremities. First, the histology of the vein wall itself should be recalled. There are three distinct layers composing the wall: namely, the intima, with its cuboid epithelium and underlying elastic membrane; second, the media, which is composed mostly of smooth muscle and some fibrous element; and, third the adventitia, which is composed almost entirely of fibrous element. The media, in a normal vein, is the thickest layer. In the varicose vein, the smooth muscle of the media is almost entirely lost. Next, we must understand the venous drainage of the leg. It will be recalled that there are two systems of veins: first, the deep, comprising the tibials, the popliteal and the femoral from below upward; second, the superficial, with the long and short saphenous. Between these two systems there are anastamosing branches numbering four to six. In the deep, the superficial, and the anastamosing branches, there are found valves with their free edge directed upward. In the long saphenous alone, it is estimated, there are from six to twelve valves. The deep circulation, by virtue of its position in the muscles and fascia of the leg, prevents varicosities, while the superficial, located as it

is in the subcutaneous fat, is less well supported and more prone to their formation.

In spite of the various theories of the etiology of varicose veins, there is very little definitely known at the present time. There are many factors which are known to be associated with the formation of varices, but no one condition explains the whole story. First, the infection theory is held by many because it is common knowledge that varicose veins often develop after prolonged generalized infection, such as typhoid, diphtheria, pellagra, influenza, and many other debilitating diseases which tend to lower the tone of the blood vessels. To the pathologist, it is common knowledge that there is a mild periphlebitis in varicose veins and the conversion of the smooth muscle to fibrous tissue. It is believed that the infection, or the toxin from the infection, first involves the valves and secondly the walls of the veins. The next theory, introduced by Sicard, is that the endocrines, especially the ovary and thyroid, play a part in the causation of varicose veins, since they are so frequently associated with pregnancies and the menorause. Against this theory, the administering of the various endocrines has not cured or limited the formation of varices. It is common knowledge that pelvic tumors, with their resulting pressure upon the iliac veins, do cause enlarged veins of the legs. Too, varicose veins are often associated with other things which increase the intra-abdominal pressure, such as coughing in chronic bronchitis. The theory of mechanical obstruction from tight bands, such as garters, seems to be the least important. Age incidence is as follows: From twenty to thirty, 18 per cent; from thirty to forty, 27 per cent; from forty to fifty, 24 per cent; and from fifty to sixty, 16 per cent. As to sex, the occurrence is equal up to the age of twenty and after that it is four times more common in the female than in the male. Heredity has played a part in from only 6 to 10 per cent of the cases. Occupations requiring standing in one position for long hours, such as barbers, clerks and so forth, seem to be an added factor.

To understand the mechanism involved in the production of varicose veins, we must also understand the physiology of the circulation in the legs and its variation from the normal, with the resulting pathology. Normally, both the deep and superficial venous system drain blood from the extremity toward the heart. The deep circulation is aided in its work by the negative abdominal pressure, as a result of respiration, plus the pumping action of the muscles in the leg. The superficial, on the other hand, which is supported by fat, must depend entirely upon the negative abdominal pressure. Hence, under normal conditions, when the valves of both systems are functioning perfectly, it is easily seen that the deep circulation is by far the most efficient. Let us suppose now that the valves in both systems are destroyed by some disease process, then in the superficial circulation, having only the negative abdominal pressure to assist it, and with no valves in the inferior vena cava or the iliac veins, there will be a column of blood extending from the foot to the right auricle of the heart. This proves too much for the superficial circulation, and the walls of the vein must distend to compensate. The result is a reversed flow of blood in the superficial circulation and the blood finds its way from the superficial to the deep circulation by means of the communicating branches, and must be carried back to the heart by the deep valves. But in part, at least, this same blood is spilt back into the superficial circulation again at the saphenofemoral junction. Then we have a reversed flow in the superficial circulation of blood which is poorly oxygenated. This leads to malnutrition of the tissues, especially in the lower leg, which lymphatic edema and later sclerosis and lowered resistance to infection. It is necessary now only to receive a slight injury, and a varicose ulcer is the result. McPheeters, of Minnesota, who has done considerable work on the injection treatment of varicose veins, has proved this reverse flow by injecting lipiodol high in the saphenous and observing its course distally by means of the x-ray.

Since it is the purpose of this method of treatment to form obliterating thrombi in the lumen of the veins, it is only logical that one of the greatest criticisms against this method would be the production of emboli. But with this explanation and proof of the reversed circulation in the veins so treated, one can see that any emboli formed, instead of going to the main circulation, would travel distally into a small section of the vein and would have to pass through even smaller communicating branches between the two systems of veins before they could get into the general circulation. These emboli have been found, in pathological sections, to have lodged in the various branchings of the veins distal to the point of thrombosis.

In the consideration of the various solutions, I have mentioned in the history strong caustic solutions, which soon met their death. The following is a list of the more common solutions in use today, in their order of importance, as used by McPheeters. First, calarose, which is an invert and cane

sugar; second, quinine and urethane; third, invertose, 50 to 70 per cent solution; fourth, sodium salicylate, 20 to 40 per cent solution; and, fifth, sodium chloride, 20 per cent solution. Sodium chloride is very irritating and when injected outside of the vein it gives a slough. It is used chiefly in the larger varices, where thrombosis is difficult with the more mild solutions. Glucose and other sugar solutions are not as effective and give intense cramp from three to five minutes following injection. An equal mixture of 20 per cent sodium chloride and 50 per cent glucose, I believe, is the most efficient and practical of all the solutions. Quinine and urethane are very effective and painless, but only 2 c.c. can be given at a single time due to its systemic effect.

Before any injections are attempted, one must first test the circulation of the leg, for this we have the so-called Trendelenburg test. This is merely a test of the presence or absence of the reversed flow in the saphenous. The patient is asked to stand and the varices are noted. Then the patient is asked to lie down and the leg is elevated to drain the superficial system. Pressure is now made over the sapheno-femoral junction sufficient to block the saphenous body, and then the patient is asked to stand. If the vein fills slowly, say in 20 to 30 seconds, the Trendelenburg test is negative for we do not have a back flow, but, instead, the saphenous is filled naturally. This also proves that the valves in the communicating branches are functioning. Next repeat the experiment, relieve the pressure over the saphenous quickly and if the vein fills suddenly, in from 5 to 10 seconds, the Trendelenburg test is positive because the blood is draining backward from the femoral vein into the saphenous and a reverse flow is in evidence.

The injection treatment of varicose veins is definitely contra-indicated when it is proved that for any reason the deep circulation is not functioning, so we next apply a tight bender bandage over the varices, thus depleting the superficial circulation, and ask the patient to walk briskly for a few minutes. If there is no cramping or aching, we know that the deep circulation is functioning and the obliteration of the superficial circulation is justified. This test is called the Perthe modification of the Trendelenburg.

The technic of the injection method is something that must be worked out by the individual clinician, but the clinician must understand the pathology of varicose veins in order to develop a technic that is logical and effective. A thorough history and physical examination of the patient must be done first, or we will make grave mistakes, as will be seen later in the contra-indications to treatment. Next, the patient is asked to stand, exposing both legs so that the varicosities are in plain view. The following technic is that used by McPheeters. The entire leg is bathed in alcohol and the more prominent varices are marked with mercurochrome or iodine. The patient is next placed on the table and the injections begun from below upward. Two tourniquets are applied, about six inches apart, after the leg has been elevated and the veins depleted of their blood. The needle is introduced and the solution injected in sufficient amount moderately to distend the vein. The needle is left in the vein from three to five minutes, or until the solution has had time to act upon the intima. If the needle is withdrawn too quickly, some of the solution may leak out and cause a slough, or if the needle is withdrawn quickly and pressure is applied over the site of its introduction, the solution that has been injected will be pushed away and become diluted with blood, and our purpose defeated. Next, a small gauze sponge is placed over the site of the injection and an adhesive plaster over this, to hold it snugly in place. The number of injections varies with the clinician, but McPheeters likes to inject all the varices at one time. After he has injected all the varices between the two tourniquets, he applies another tourniquet six inches higher and continues his injections. After the entire leg has been injected, he raises the leg high to drain out any excess of the sclerosing solution, so that it will not get into the deep circulation and cause thrombosis there. The entire leg is then supported from below upward with an elastic Ace bandage. He then asks the patient to walk for a few minutes. This also aids in relieving the deep circulation of excess solution due to the pumping action of the muscles on the veins. In three or four months, he has his patients come back so that any scattered varices may be taken care of.

The armamentarium for this method of treatment is very small. All that is necessary is a 5 to 10 c.c. syringe, which can be easily manipulated with one hand, a 21 to 25 gauze needle, varying with the type of solution that is being used (the needle should be about $\frac{3}{4}$ to 1 inch in length, of a short bevel and very sharp), two tourniquets, two or three Ace cotton elastic bandages, and a few gauze sponges.

The indications and contra-indications vary with the physician, but it is generally conceded that all varices can be treated by

this method where the general condition of the patient permits and when the deep circulation is sufficient to carry all the returning blood from the extremity. Some of the more common contra-indications are as follows: First, the history or the presence of an attack of acute thrombo-phlebitis, which has destroyed the deep circulation; second, chest or pelvic pathology should be eliminated, if present, before treating the veins; third, varicose veins associated with elephantiasis should not be treated, due to the already poor circulation associated with the elephantiasis; fourth, treatment is also contra-indicated, or should be carefully guarded, in the arterio-sclerosis of the aged, in cardiac decompensation, hyperthyrodism, and in latent tuberculosis; and fifth, it is definitely contra-indicated in thrombo-angitis obliterans. In diabetes, the diabetic condition should be taken care of first, or gangrene might result.

Earlier in this discussion I mentioned the mechanism of ulcer formation. It is past the limit of this paper to discuss in full the treatment of varicose ulcers. Briefly, ulcers respond very favorably when supportive and injection treatments are carried out together. The ulcer is first treated with 10 per cent silver nitrate and covered with a gauze saturated with some antiseptic ointment, preferably containing zinc oxide. Over this is placed a large sponge and this is snugly compressed with an ordinary gauze bandage to hold it in place. The entire foot and leg is then supported with an Ace bandage and, at a later date, varices in the region of the ulcer are injected. This method is far superior to any of the various surgical procedures previously used.

It is only left now to discuss the safety and rationale of this method of treatment in comparison with operative measures. McPheeters, from questionnaires sent out to surgeons over all the country, received the following data: Out of 6771 operative cases, there were 35 deaths from postoperative pulmonary embolism, or .53 per cent, and 37 non-fatal cases. The average stay in the hospital was 15.1 days. On an average the patients resumed their work in 34.8 days. A check up as to recurrence at the end of one year showed 5 per cent, and at the end of five years, 19.2 per cent. In comparison with this, out of 53,000 cases treated by the injection method, there were only four fatalities, or .00754 per cent as compared to 53 per cent from operations. This is exactly seventy times less. As to recurrence, Kilbourne, of Los Angeles, collected the following data from questionnaires: Out of 1400 operative cases, there was 30 per cent recurrence, while the average recurrence after the injection method is only 6 per cent, or one-fifth that after operation.

The complications may be briefly summarized as follows: First, embolism, which we have just discussed; second, sclerosing phlebitis, which, after all, is not a complication but a desired effect because it obliterates the entire saphenous and has never caused a fatality as far as is known. In this condition there is some tenderness and pain over the saphenous but this usually disappears in a few days, if there is no infection. Third, an acute thrombo-phlebitis is a complication due to poor technic. When this condition arises it must be dealt with in the usual manner. Fourth, sloughs, another break in the technic, likewise treated in the usual manner. Fifth, septicemia is a rare complication not nearly as common as following operative methods.

In conclusion, there are many factors favoring the injection treatment over the operative, on behalf of both the patient and the surgeon. The patient is subjected to less risk from fatal sequelae if he is in careful hands; the treatment allows him to be ambulatory and, away from his work but a few days at most; it is far less expensive since hospitalization is not necessary; and, lastly, recurrences are much less common. On the other hand, the surgeon is assured of less worry from embolism and septicemia, the method requires less time than dressings following the operative treatment, and he is assured of more permanent results and greater satisfaction on the part of his patient. It is true that this method of treatment is new to most of us and is not as simple as it may seem. But from the standpoint of physiology and pathology, it is logical and since it can be carried out in the office, it is practical, so, with the development of a careful technic, I believe it will become a more universal method of treatment of varicose veins and will largely replace operative measures.

At the American Medical Assoacition Convention held in Philadelphia on June 8-12—visiting physicians noticed among the familiar exhibits, an attractive display of Cocomalt, the delicious chocolate flavor food drink. Cocomalt was served daily to the visiting physicians. The Cocomalt booth was one of the most popular booths at the Convention. The physicians took advantage of the opportunity to have samples of Cocomalt forwarded direct to their homes and offices.

Readers of this journal are well acquainted with Cocomalt and what it will accomplish. Cocomalt is an easily digested nourishing food that is as valuable for adults as it is for children.

REVIEW OF LITERATURE AND SOME SUGGESTIONS ON SEPTIC SORE THROAT

M. B. CULPEPPER, M.D.
Carlsbad, N. M.

(Read before the New Mexico Medical Society, at its Forty-ninth Annual Meeting, Albuquerque, N. M., May 20-22, 1931.)

Definition: An acute infection of the tonsils and throat caused by the streptococcus group of bacteria and characterized by extreme swelling and soreness of the throat, enlargement of the cervical lymph glands and marked prostration. It is communicable, often appears in epidemic form, and is frequently spread through milk. But probably the most common cause in this country is contact, as children congregated in schools, or people in assemblies contract it, and usually when one member of a family is affected, several or all of the family likewise have it.

Synonyms: Streptococcus angina, epidemic sore throat, streptococcic sore throat, glandular fever. The most applicable term is probably septic sore throat.

HISTORY

The relationship between an explosive epidemic of acute sore throat in sharply localized areas and the milk supply of such areas, has been recognized in England for many years. Savage has abstracted reports of eighteen such epidemics which occurred in England between 1880 and 1904 and one which appeared in Christiana which involved 548 reported cases and probably many unreported ones. In all of these epidemics there is reasonable evidence to suppose that the infection was spread by the milk supply, although the means by which the milk became infected was not discovered.

The first outbreak reported in America was the Boston epidemic of 1911, which involved fourteen hundred persons living in good residential sections of Boston and neighboring towns. It was studied by Winslow with the full cooperation of the dairy involved. It was found that 70 per cent of the cases occurred in the area of distribution of one branch of the dairy, while the customers supplied by a seccond branch of the same dairy escaped infection. Nine other large epidemics have since been reported and extensively studied. Limited epidemics of sore throat due to infected milk are believed to be far more common than is indicated by published reports, for in the smaller centers of population where laboratory facilities are not readily available they attract less notice and are less likely to be reported.

In our own southwestern territory, septic sore throat apparently made its appearance much later than in the east. Personally, I do not recall that I saw the disease before about 1925, and then it resembled diphtheria so much that it was only after laboratory tests that I was convinced of the difference. However, its causative factor was easily demonstrated by laboratory investigations, as the streptococci bacteria were very prominent in all examinations.

BACTERIOLOGY

Streptococci which are definitely hemolytic are frequently isolated from the throats of persons ill from epidemic sore throat and also from the infected milk. These organisms closely resemble Streptococcus pyogenes and are pathogenic for rabbits. Streptococcus lacticus, which is always present in milk, is non-hemolytic and is non-virulent for man and rabbits.

Streptococcic infections are relatively common both in men and cows. A milk handler may readily infect milk through coughing or sneezing. Such contaminations can account for an acute epidemic of several weeks' duration only when the infected milk handler continues at his work, which is unlikely unless he be a healthy carrier.

It is apparent that there must be some continued source of infection which is related to the milk supply. Mastitis is not an uncommon cause. Were the organisms of this disease pathogenic to man, milk would be almost constantly infected by milk handlers, which is not the case. In five of the American epidemics, a virulent Streptococcus hemolyticus, distinct from the bovine types of streptococccus, has been recovered from the infected milk. Davis found these practically identical with the cocci isolated from septic sore throat cases.

Davis and Capps have shown that hemolytic streptococci from sore throat produce mastitis when injected directly into the cow's milk ducts. This mastitis may be severe, leading to caked bag, or the organism may grow and multiply in the milk ducts without producing visible changes in the udder. Cows so infected produce milk which contains hemolytic streptococci and an increased number of leukocytes. The infections may persist over a long period in the form of chronic mastitis. These workers found that swabbing the streptococci around the meatus of healthy teats did not produce an infection, but if the teat were scarified, an ascending infection occurred, marked by an increase in the number of leukocytes and the presence of large numbers of streptococci in the milk. The organisms were still present at the end of four weeks.

One is led to conclude that the causative organism is a human strain of streptococci which reaches the cow's udder, probably through the hands of a milker coming in contact with an abrasion on the teat. Subsequently, the milk from this cow infects the entire quantity of milk marketed.

These streptococci retain their viability in milk, cream and milk products. Ice cream, especially, has been found to preserve the organisms for at least three weeks without appreciable diminution in number or virulence. Cream contains more organisms than milk, since the bacteria cling to the fat globules. The organisms survive the flash method of pasteurization, but cannot withstand the usual method of pasteurizing at 145° F. for thirty minutes.

Instances have been recorded in the United States in which epidemics have developed from the milkman with a boil or lesion on his hand, and laboratory tests showed that the milk was not infectious until it had passed through the milkman's hands. Then, having become infectious, it produced septic sore throat. Upon removal of the milkman from his occupation, the epidemic would cease.

EPIDEMIOLOGY

The outbreaks are seasonal, occurring during the winter and spring. They are explosive in character, several members of a household often being stricken at the same time. The disease runs a course of one to three weeks. In most epidemics, the relationship to the milk supply seems definitely established. Further studies may show that other media may serve to convey the disease. Secondary contact cases occur, but are few in comparison to the original infection.

INCIDENCE

Age and Sex. Winslow found that children were less frequently affected than adults and that infants were almost free from the disease. Children of school age furnished a comparatively small number of cases, while young adults between sixteen and forty-five comprised more than half of the total. In my observation, those with diseased tonsils or tobacco throats have been most frequent sufferers, being much more unhealthy than those with more healthful throats.

SIGNS AND SYMPTOMS

The incubation period is short, from one to three days. The onset is sudden, with malaise, chills, dull headache, with rather gneral pains through the entire body and extremities and especially around the joints, lasting from one to two days, after which the body pains quiet. Then the soreness of the throat becomes a prominent symptom, attended with fever and headaches. After a few hours, exudate appears on the tonsils, at first grayish to a yellowish color and finally presenting the appearance of thick membrane, resembling that of diphtheria. This membrane is usually situated upon the tonsillar surface, not often spreading to surrounding tissues. Swallowing is painful throughout. Temperature rises and sometimes reaches as high as 104°, but usually is around 101° and 102°. This lasts from two to four days, about which time the exudate on the tonsil disappears.

Enlargement of the cervical glands is a very frequent accompaniment of this disease. Adenitis may appear early or after several days. The glands may be considerably swollen and very tender to the touch, but very rarely go on to suppuration. They may be palpable for weeks after the acute attack. A skin eruption is frequently present. It may be erythematous and closely resemble the rash of scarlet fever, or may show small hemorrhagic spots.

In milk cases the acute symptoms subside in from three to five days, but complications are common and relapses frequently occur, especially a recurrence of the tonsillitis after an interval of a week or ten days.

COMPLICATIONS

The most important complications are enlargement of the cervical lymph-nodes, erysipelas, otitis media, bronchopneumonia, arthritis, pleurisy, nephritis and endocarditis. Peritonitis, where postmortem shows no evidence of an appendicitis or intestinal perforation, is a part of the general septicemia. It has been noted in most of the epidemics and is one of the most frequent complications.

The persistence of foci of streptococci which later flare up, accounts for the arthritis, muscular rheumatism and endocarditis. Blood cultures in severe cases show the presence of streptococci. The cases occurring in an epidemic are apt to have more frequent and more serious complications.

DIAGNOSIS

The diagnosis of the individual case may present some difficulty until the explosive nature of the outbreak is recognized. Cases are found among those who are patronizing a certain milk dealer or who go to the same restaurants or ice cream parlors.

The glandular swelling, extreme swelling and soreness of the throat, the marked prostration and recurrence of sore throat after a drop in the fever, differentiate the condition from ordinary tonsillitis.

Appendicitis with rupture may be suspected when peritonitis occurs, but a laparotomy will reveal a peritonitis with the appendix intact.

Scarlet fever is not easily differentiated if the rash is severe, but the blanching test

is negative, there is no strawberry tongue, and the rash appears on the third or fourth day.

PROGNOSIS

The mortality in recent epidemics ranges from 2 to 5 per cent. The disease takes its heaviest toll from those over fifty-five years of age. Peritonitis is the most common cause of death.

The disability in mild cases continues from nine to ten days, but relapses and complications may prolong the disease indefinitely.

PROPHYLAXIS

Present evidence indicates that efficient pasteurization of milk and milk products, including cream and ice cream, will protect the consumer from a strepococcus infection. The cocci cannot withstand a temperature of 145° F. for thirty minutes. The flash method is not effective. Certified raw milk is not proof against streptococcic infection, as was shown by the Boston epidemic.

Every case of septic sore throat should be isolated with as much care as one of diphtheria or scarlet fever.

TREATMENT

Children who may present only mild symptoms should be kept in bed until all constitutional and local symptoms have disappeared. Small doses of aspirin or phenacetin can be given to relieve the pain and fever. It is doubtful if the benefit which may possibly result from the use of antistreptococcus serums is worth the pain and discomfort of the injection.

Local irrigations of the nose, pharynx and throat with large quantities of hot normal salt solution are of great benefit and are not disturbing to the child. Spraying or directly applying weak solutions of argyrol, mercurochrome, gentian-violet, and so forth, is of decided advantage in shortening the attack and relieving the throat. Older children can gargle with mild antiseptics or a saline solution, and the use of perborate of soda, or Vince. The application of warm poultices to enlarged glands is very beneficial, as well as soothing.

If diphtheria is suspected, the use of diphtheria antitoxin is advised, so that no time may be lost pending the report of the bacteriological examination.

PUBLIC HEALTH REGULATIONS

The Sanitary Code of the New York State Department of Health includes septic sore throat among the communicable diseases that must be reported to the local health officer. The report must be made within twenty-four hours from the time the case is first seen by the physician. Children suffering from this disease are excluded from school and gatherings. The length of time and other conditions are prescribed by the local health authorities.

DISCUSSION

DR. F. D. VICKERS, Deming, N. M.: In Deming last year we had more cases of sore throat than I had ever seen there before. We tried to trace them to a certain dairy but could not run down the origin. Dr. Culpepper's paper is very interesting to me and is very timely as well, and I want to congratulate him upon the able way in which he has set forth the facts.

DR. C. W. GERBER, Las Cruces, N. M.: In New Mexico, septic sore throat is considered a formidable disease. There is absolutely no reason why medical men should not send the specimen to the State Laboratory. There is no doubt but that septic sore throat is a serious condition. The death rate is a little higher than that Dr. Culpepper stated. The patients are often very sick—they look and act ill; the septic condition becomes rapidly intense. We have had a certain number of deaths in Dona Ana County from this cause and I should like to urge that cultures be taken in every case of sore throat, even follicular tonsillitis, which you may come across.

DR. CULPEPPER (closing): In regard to the death rate, it is probably somewhat larger than I stated in my paper. There might be some complications that I have not mentioned, glandular involvements and stiff neck, due perhaps to spinal lesions. I believe that is something we must work out, and agree with Dr. Gerber that a culture should be taken in every case.

MALUNION AND NON-UNION OF FRACTURES

JACOB E. SHEARER, M.D.,
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(Before the Arizona subcommittee of the Committee on Fractures of the American College of Surgeons at Prescott, July 11, 1931.)

Malunion and non-union of fractures is a very comprehensive subject about which much has been written. It is not my purpose to give a lengthy discussion of the subject, but to consider in a brief manner: (1) the outstanding causes of malunion and non-union; (2) the correct treatment of fresh fractures in order to prevent the occurrence of malunion and non-union; (3) the treatment of these conditions once they have occurred.

Fortunately, during the past few years, since the more extensive use of x-ray, better hospital equipment for handling fractures, and the development of a better understanding of the treatment of certain types of fractures, we are seeing fewer cases which result in malunion and non-union. However, they are still common enough to encourage further study of the cause of these conditions and to influence us to use every possible care in the treatment of fresh fractures to prevent their occurrence.

The process of union of fractures is not thoroughly understood. We do know that

the hemorrhage at the site of fracture, fragments of bone and periosteum, marrow substance, certain cellular, elements, and calcium and phosphorus salts, enter into the formation of callus and the repair of fractures. The manner of changes from the time of fractures to the time of union is not known and until they are better understood many questions in regard to non-union will go unanswered.

When is a fracture to be considered a non-union? Only when, after a satisfactory reduction has been obtained, all attempts at union have ceased, as shown by x-ray and examination.

OUTSTANDING CAUSES

The apparent outstanding known causes of malunion and non-union are closely associated and may be discussed together. They are: (1) inadequate reduction, (2) improper splinting, (3) fragments of muscles between bone fragments, (4) loss of bone, (5) interference with blood supply, (6) infection at the seat of fracture, (7) removal of splints before union is solid, or too early use of fractured parts without protection, (8) early massage and physiotherapy, (9) certain diseases of bone and general debilitating diseases, (10) lowered or deficient calcium and phosphorus content of the blood, (11) old age, (12) improper operative measures.

(1) Inadequate Reduction. Every fracture should be reduced as accurately as possible, because a perfect reduction places bone elements in correct approximation, equalizes the tension on the fragments, and increases the chances for union. A perfect reduction, however, is not necessary for union, as we often see union in unreduced fractures. Imperfect reduction does produce malunion and disability, and enhances the chances for non-union.

(2) Improper Splinting. This is one of the chief causes of malunion and non-union. A splint, to serve its purpose, must immobilize a fracture until union is solid. A splint which allows the fragments to become displaced or motion at the site of fracture, causes injury to the callus and destruction of the delicate newly formed blood vessels, ultimately resulting in malunion or non-union.

(3) Fragments of Muscle Between Bone Fragments. Union will not take place when muscle tissue is interposed between fragments of a fractured bone, until it is removed or destroyed by the pressure of the bone fragments, as callus will not penetrate muscle tissue.

(4) Loss of Bone. In compound, crushing, and gun-shot fractures, when a considerable amount of bone is destroyed or removed by debridement, non-union or malunion often occurs. It has been observed in fractures of the tibia without fracture of the fibula and in fracture of one bone of the forearm, where the fragments are held apart by the unfractured bone, that non-union occurs.

(5) Interference with Blood Supply. This may occur, due to an injury of the nutrient vessel, by a separation of the periosteum from the fragments, by separation of the soft tissues from the periosteum, by crushing injuries and thrombosis of neighboring vessels, and by tight splinting. It must also be remembered that in certain fractures, such as that of the neck of the femur, the blood supply of one fragment is much impaired.

It is a fact that, when the blood supply to a fracture is deficient, the processes of union are absent or retarded, and we find a non-union or a delayed union. There may not only by a slowing down of callus formation, but there may even be an atrophy of the ends of the fragment.

(6) Infection at the Seat of Fracture. It has been observed that a very mild infection at the seat of fracture may accelerate the process of repair. On the other hand, an uncontrolled infection will cause a destruction of callus, death and sequestration of the ends of the fragments, resulting in non-union.

(7) Removal of Splints before Union is Solid or Too Early Use of Fractured Parts Without Proper Protection. This is a common cause of malunion and non-union. Many fractures which are apparently firmly united, according to examination by x-ray, will separate or angulate if early use without protection is allowed. This is due to the fact that the callus is not firm enough to withstand the forces to which it is exposed. This is especially true of fractures of the neck and shaft of the femur. Often fractures of the neck of the femur separate after weight-bearing is begun. Recently I saw a malunion of a fracture of the shaft of the femur in a child 10 years of age. A practically perfect reduction was obtained on the day the fracture occurred, as shown by x-ray. The child was kept in a plaster of paris cast for six weeks. At this time, physical and x-ray examination showed the fracture had united solidly, with the fragments in good position and alignment. On weight-bearing a deformity gradually developed, resulting in a marked

anterior and outward bowing with one-inch shortening of the femur. This could easily have been prevented by a suitable walking brace.

(8) Early Massage and Physiotherapy. I do not believe in early massage and other types of physiotherapy to fractures, unless given by an expert and then with extreme care. I believe the harm done in the use of physiotherapy far outweighs the good effect obtained. There is too great a chance of allowing fragments to slip, causing motion at the seat of fracture violent enough to destroy the forming callus. Good results have been reported from this type of treatment in children and young people, but I think the same results could have been obtained without physiotherapy. I have seen no advantage of its use in middle-aged and older patients and I believe that, if it were more extensively used by inexperienced technicians, we should hear more of its bad results.

(9) Certain Diseases of Bone and General Debilitating Diseases. Severe hemorrhage, general debilitating diseases, glandular disturbances, and many other diseases, have been given as causes of non-union. I believe they have little, if anything, to do with the union of fractures. In certain conditions, as osteomalacia, and osteogenesis imperfecta, union is delayed or non-union may occur. Syphilis delays union, probably by delaying the formation of callus and the deposit of calcium and phosphorus salts. It has been observed, in many cases with syphilis, where union was delayed, that anti-syphilitic treatment hastened the process of repair to a marked degree. In cases of non-union in syphilitic patients where open operation was resorted to, the periosteum was found to be greatly thickened, the cortex sclerotic and hard. Callus, of course, was small in amount.

(10) Lowered or Deficient Calcium and Phosphorus Content of the Blood. Although little is known in regard to the effect of deficient calcium and phosphorus content of the blood, and experimental work has proved little, it seems reasonable to believe that, with this condition present, the process of repair would be slow. I think that, in cases of multiple fractures where so often we see non-union of one or more fractures, it may be accounted for, partially, by a deficiency of calcium and phosphorus.

(11) Old Age. The age of the patient affects, to some degree, the union of fractures. Fractures in children unite quickly. From twenty-five to fifty years of age, there is very little difference in callus formation and the time required for union. After fifty years of age, the process of repair is slow and the older the patient, the slower the process of union.

(12) Improper Operative Measures. It is a great tendency of most men to reduce by open operation many types of fractures which could be reduced by the closed method. No fracture should be reduced by open operation that is reducible by the closed method. It is too often the case that, during open operation, foreign substances, such as wire, lane plates, and so forth, are used for fixation. These repel callus and are a cause of non-union.

THE CORRECT TREATMENT OF FRESH FRACTURES TO PREVENT MALUNION AND NON-UNION.

When treating fresh fractures we should avoid the above causes of non-union and malunion. Each fracture should be considered as an individual problem. The correct type of treatment and suitable splints should be determined from a careful study of the patient and x-rays of the fracture. Every fracture should be reduced as soon as possible after it has occurred, and it should be reduced accurately, with the least possible amount of manipulation, so as to avoid secondary injury to the tissues. After reduction, suitable splints or a paster of paris cast should be applied, immobilizing the fracture until union is solid.

There are many objections to plaster of paris casts, but, considering the advantages and disadvantages, I believe it is the best external splint in use today for most fractures. Skeletal and adhesive traction are advisable in selected cases, but are out of the question as a routine type of treatment. These types of traction have been emphasized in the treatment of the tibia and shaft of the femur. This is probably due to the difficulty of manual reduction of these fractures. Most of them can be reduced by traction, angulation and manipulation, and held satisfactorily with a plaster of paris cast. I think the results are better when the latter method of treatment is used.

In fractures of the shaft of the femur, we see many cases of malunion due to over-lapping of fragments, angulation, and rotation. Correct reduction and good post-reduction care will avoid the occurrence of these conditions.

Let me emphasize here the use of x-rays as a check on position of fragments and the progress of union. It is one of the

most valuable assets in the treatment of fractures.

Avoid repeated attempts at reduction. Often the final result of a fairly accurately reduced fracture is better than one more accurately reduced by repeated manipulation.

In regard to the operative treatment of fresh fractures, I can add nothing to the statement of Whitman that "Operative treatment is indicated when a satisfactory reduction can not be obtained and maintained by non-operative methods, provided there is no contraindication, and when the expected result of the open method is sufficiently better than that of the closed to justify the additional risk." Of course, we are all aware of the fact that there are certain fractures, such as fractures into joints, which can not be reduced by closed method—transverse fractures of the patella with separation of the fragments, and others, where open reduction is practically always indicated.

In treating compound fractures, I have for several years adhered to the following plan: If seen early, before infection has had time to develop, a thorough debridement is done. All crushed and devitalized tissue is removed, the fracture is reduced, thorough drainage is established and a suitable splint and wet dressing applied until infection is controlled. If compound fractures are not seen until after considerable infection is present, thorough drainage should be established and the infection controlled before reduction is attempted.

TREATMENT OF MALUNION AND NON-UNION

The desired result from the treatment of a malunited fracture is to overcome deformity and to restore the deformed part to as near normal as possible. If malunions are discovered before union is solid, as all should be, then the partial union should be broken up manually and a correction made by the closed method, if possible. If union is solid, then some operative procedure, such as osteotomy, bone-lengthening operation, or open reduction, must be done.

In selecting the course of treatment for non-union, it is well to keep in mind the fact that many cases of apparent non-union are in reality delayed union, and with the proper non-operative treatment, will progress to a solid union, if given time. This type of case should have proper braces or splints to immobilize the fracture and yet allow use of the injured part. The general condition of the patient should be built up. Exercise, proper diet, cod-liver oil, calcium, and sun baths or violet ray treatments, are indicated.

If a true non-union, with or without pseudo arthrosis, has developed, and the reparative process has stopped, then operative measures are the only procedure. At operation, all scar tissue should be removed from the vicinity of the fracture, to insure a good blood supply. Old callus should be removed and the hard, eburnated ends of the fragments cut away until healthy bone tissue is reached. As little bone should be removed as possible, to prevent undue shortening. The medullary cavity should be re-established. After this procedure, when reduction is accompplished, some type of internal fixation should be used. The best material for this purpose is the autogenous bone graft which may be used as an osteoperiosteal, intra-medullary, inlay or onlay graft. The autogenous graft servis not only as an internal splint, but as a stimulation to callus formation, becoming incorporated in the newly formed callus and an internal part of the union.

CONCLUSIONS

1. The careful study of end results of fractures during the last few years has shown that the end results can and should be made better.

2. The public, as well as the profession, are demanding shorter periods of disability and better functional results.

3. Better results may be obtained by a more careful treatment of fresh fractures.

4. Malunion and non-union can be avoided in nearly 100 per cent of fractures by the correct treatment of fresh fractures.

5. A careful distinction should be made between delayed union and non-union, in order to avoid unnecessary operative procedures and added risk to the patient, as most cases of delayed union will progress to solid union without operative interference, if the proper treatment is instituted.

6. The autogenous bone graft as a means of internal fixation and a stimulus to callus formation, is the best method of treatment of non-union.

The Western Branch of the American Urological Association will hold its Seventh Annual Session in San Francisco on November 6 and 7, 1931 at the St. Francis Hotel.

The program will consist of scientific papers, wet and dry clinics, an opportunity to see the University of Washington versus the University of California football game, a golf tournament and a dinner dance at Tait's-at-the-Beach.

The official hotel will be the St. Francis.

THE MINIMUM EQUIPMENT OF GENERAL HOSPITALS FOR THE TRANSPORTATION AND EMERGENCY TREATMENT OF FRACTURES

H. T. SOUTHWORTH, M.D., F.A.C.S.
Prescott, Ariz.

(Before the Arizona Subcommittee of the Committee on Fractures of the College of Surgeons, Prescott, Ariz., July 11, 1931).

Two years ago, Dr. John Bacon, in his paper on fracture read before the members of the Arizona Medical Association at its meeting in Prescott, called attention to the great numbers of fractures resulting from the swift and reckless transportation on land, sea and air, and commented on the great numbers of fractures first seen by the general practitioner. In the splendid illustration which Dr. C. E. Yount has just given, he shows, by the various parts of the wagon wheel—the hub, spokes, felloe and tire—the relationship from the General Committee on Fractures of the American College of Surgeons (the hub) out through the various sub-committees, represented in his illustration as the spokes and felloes, to the general practitioner, the tire. He makes the simile that, as the tire comes in intimate contact with the earth, so does the general practitioner come in intimate contact with the fracture case.

After making a casual survey, I am persuaded that, in this age of good roads and the almost universal use of the automobile, we have passed into another phase in non-industrial fractures than that referred to in Dr. Bacon's and Dr. Yount's illustration. If it is true locally, we see no reason to believe that it is otherwise in other communities. The phase in which we are living is, that it is not the general practitioner who first sees and prepares the fracture case for transportation but the chance motorist who first arrives at the scene of the accident.

Consider the change in the order. Time was when the doctor was called to see the fracture, regardless of distance, but now the fracture case, whether simple or compound, single or multiple, whether of finger, femur or frontal, unheralded and untreated, is transported to the hospital or doctor's office, by family, friends or passing motorist.

The industrial fracture case continues to receive excellent first aid and proper immobilization before transportation, but that is not true of the great majority of non-industrial fractures. For the past fifteen years the medical profession has been trying to learn to "splint them where they lie" and now, when it has begun to appreciate the necessity of practising the teaching of that slogan, the opportunity has passed out of its hands to those of lay people.

Please note the splendid ambulance service which this community has at its disposal for the transportation of fracture cases. Note the Thomas arm and leg splints which, when applied, so effectually minimize the additional trauma incidental to transportation. Are you surprised to learn that this equipment is seldom used? An extreme case of lay transportation in Arizona is that of the man who sustained a minor injury and was given transportation by a lady motorist. In her haste to get the patient to the hospital, she wrecked her car, killing herself and seriously injuring the patient.

Mr. Chairman, we believe that your committee and the General Committee on Fractures of the American College of Surgeons have before them the stupendous task of educating diversified groups of lay people to the fact that "Splint them where thhey lie" or let them lie, rather than transportation, is the first aid in fracture cases.

It is true that such groups as Boy Scouts, Red Cross, City Firemen and many industrial workers, are given instruction in first aid, but these groups are seldom along the highway where these non-industrial accidents occur. Therefore, we believe that safety first and first aid must be taught to much larger groups of lay people if the number of accidents is to be reduced and if fractures are to be properly immobilized before transportation. We think the suggestion that immobilization splints, with instructions how to use, be prominently displayed in every road-side service station, is a good one, and would be one step in advance of the present condition.

At this time your attention is called to the display of the minimum equipment for the transportation and emergency treatment of fractures. It consists of the following:

1. Thomas upper extremity splints.
2. Thomas lower extremity splints with traction straps, sling and buckle straps.
3. Hodgen splints.
4. Coaptation splints, assorted sizes.
5. Cabor wire splints.
6. Straight pieces of wood (of assorted length, width, and thickness) for splints.
7. Plaster of Paris bandages.
8. Suitable x-ray apparatus, including a portable machine, if practicable.

CASE OF STREPTOCOCCIC PNEUMONIA (With Discussion and Autopsy Report)

HOWELL RANDOLPH, M.D.,
Phoenix, Arizona.

(Presented before Staff of St. Joseph's Hospital, Phoenix, at meeting of April 13, 1931.)

Patient was admitted to the hospital March 22 by ambulance with chief complaint shortness of breath, fever, sweating and pain in the right side of the chest.

Family History: Father and mother living and well. Wife living and well, no children. One brother well.

P. H. On admission patient was too sick to tell much of his past troubles. He stated, however, that he had never had tuberculosis, and that he had always been in good health until about three weeks before admission. A few days after the death of the patient a brother told me that he had had "pneumonia" twice during the previous three years.

P. I. About three weeks before admission the patient had developed a head cold. One week before he had noticed a cough with a small amount of expectoration, and he thought it was a chest cold. He continued to work, however, until the day before, when he was too weak to get out of bed. He developed a soreness in the right side of the chest, and the expectoration became very profuse. The temperature rose and he began to perspire a great deal. These symptoms increased during the day and that night. The following morning he decided to be taken to the hospital.

P. E. Patient was a fairly well nourished man of middle age. He was evidently in great respiratory distress. The face was flushed, with prominent vessels on forehead and temples. Moderate degree of cyanosis. The pharynx was injected, the tonsils small. Examination of the chest showed marked dullness to flatness of the right upper chest down to the 4th rib anteriorly and slight impairment of resonance of the base on the right. The breath sounds over the upper right were amphoric to coarse bronchial over the central portion of the right chest, and of about normal intensity over the base. Numerous moist rales, crepitant and coarse, over the upper right and extending down to the right base. Abdomen moderately distended. Heart rapid but otherwise normal. Temperature ranged from 104 on admission to about 102, averaging about 103. Pulse around 120 to 130 and the respirations between 30 and 40. Blood examination made three times, 13,050 on day of admission, 5,400 two days later, 10,900 on day of death. Polymorphonuclear cells ranged from 68 on the first, 35 on the second and 44 on the third. Four sputum analyses showed many streptococci, no tubercle bacilli. The urine was normal except for few hyaline and granular casts.

Diagnosis made on admission of right lobar pneumonia. The second day in the hospital showed some increase in the amphoric quality at the right apex, with a marked increase in the amount of sputum. It was felt that an abscess was present in the upper lobe. The patient's general condition had become much worse, as was also evidenced by the marked drop in the white cells in the blood, and the shift to mononuclear forms. The following day the respiration became even more labored, there was a gradual increase in the amount of moisture in the lungs, and bronchial rattles developed from which the patient never recovered.

The treatment in this case was largely symptomatic. Heat and camphorated oil to the chest for pain, together with an empirin capsule three grains every four hours. Atropine for excessive sweating. Codeine given for severe cough.

Oxygen was given during the last day when the patient would permit it, as it seemed to make him more uncomfortable. This with digifolin one ampule every four hours did not relieve the cyanosis.

SUMMARY

This was a case of lobar pneumonia with abscess formation in a patient with some chronic lung condition, possibly empyema. At the time of admission his blood count had already passed its peak and was falling, together with the patient's resistance to the virulent streptococcoccus pneumonia. It is probable that nothing could have altered the result in this case. Specific serum, we have none. Non specific protein therapy, as with the vaccines, might have affected the blood count and thus the resistance.

A proper oxygen chamber, in which humidity and temperature can be regulated, and thus oxygen administered without offsetting much of the good that is done by the oxygen, by the discomfort caused the patient in taking it, would be of value. It is doubtful whether this would have materially benefited this patient, however.

Diagnosis; lobar pneumonia of the right upper and middle lobes, with abscess formation in the upper lobe. Streptococcus etiology.

Discussion by Dr. Norman J. Ross

We all admit two types of pneumonia, acute lobar or croupous and bronchopneumonia. Some authors (MacCallum and Stephens) list a third type, streptococcic pneumonia. By definitions of these pneumonias I will attempt to differentiate them.

Lobar pneumonia is a specific, self limited, acute, infectious disease, caused by the encapsulated diplococcus of Frankel and Weichselbaum, characterized clinically by onset with chill, high continuous temperature, toxemia and a tendency to terminate by crisis; pathologically, by three stages of engorgement, red hepatization and grey hepatization. In these stages a lobe or lobule is uniformly involved. In the stage of grey hepatization we find characteristically, several appearances on microscopic examination; decolorization and complete disappearance of the red blood corpuscles, disintegration of the fibrin, extensive leukocytic infiltration not only of the alveoli but also of the interstitial connective tissue, the white cells show all grades of fatty degeneration, with no connective tissue ingrowth or proliferation. Complications may be empyema, pleurisy, otitis media, endocarditis, meningitis, thrombophlebitis, lung abscess and gangrene. There is some question as to whether lung abscess is a complication of pneumonia, many authors considering such a lesion to be always primary and the pneumonia found at autopsy in such cases to be secondary, of the bronchial type or streptococcic.

Bronchopneumonia (lobular, catarrhal or capillary) is a disease of the infant, the debilitated and the senile, caused by a number of organisms. It may be primary in children and the aged, following exposure, but is usually secondary. It is characterized clinically by variable fever, generally remittent or intermittent, dyspnea and cyanosis; pathologically, by inflammation of terminal bronchioles and contiguous vesicular tissue, and usuallly affects groups of lobules rather than an entire lung. A grey exudative process in the bronchioles with a red hyperemic area surrounding it is characteristic.

Complications of the primary disease, as in infants, are the same as lobar pneumonia; of the secondary bronchopneumonia, more or less atelectasis is always present, pneumothorax sometimes, empyema. Complications are less frequent than in lobar pneumonia, though the mortality is greater.

Streptococcic pneumonia may be epidemic and endemic, is caused by the streptococcus, is most frequently secondary (to rhinitis, tonsilitis, pharyngitis or flu), is characterized by a remittent temperautre, marked cyanosis and dyspnea, frequently out of proportion to the findings, which are those of bronchopneumonia. There is a severe toxemia, most frequently due to septicemia, and an extremely high mortality rate. The diagnosis is based on the large numbers of streptococci in the sputum, on positive blood culture, or on x-ray findings. Pathologically, there is extensive infiltration of alveolar walls and tendency of the exudate to undergo organization at an early date. The lesions are distinctly peribronchial, having the appearances of miliary tuberculosis on cut section, and it may be impossible to differentiate them from bronchial or lobar pneumonia under the microscope.

In the particular case under discussion, I offer for diagnosis the following:

Arteriosclerosis; primary lung abscess as the debilitating factor; streptococcic septicemia; streptococcic pneumonia, with pneumothorax, lung collapse and exudative pleurisy; septic spleen; death from vasomotor cardiac failure with the usual hypostatic congestion.

The treatment then was correct. Rest and nursing. Counterirritation is indicated, such as heat, camphor and oil, pneumonia jacket or mustard plaster. He should receive 1500 calories of carbohydrate daily and 3000 c. c. of fluids. For oxygen administration we have the latest equipment here, and its use in 35 to 40 per cent concentration for dyspnea and cyanosis is invaluable. The use of digitalis is a matter of opinion and judgment; I am for its intelligent use. I would suggest adrenalin and pituitrin, along with caffeine for the vasomotor cardiac treatment. I would most certainly give sodium chloride t. i. d. unless there is considreable kidney damage. Sodium chloride is excreted in large amounts in the sputum and perspiration, and the fact that it is usually absent from the urine, demand its use. It is a necessary food for the patient, aiding metabolism and overcoming toxemia. A five per cent solution in one ounce doses every two hours or in bulk is recommended. For a narcotic I suggest alcohol; it is both narcotic and food, being the only food absorbed through the gastric mucous membrane; can be given in one ounce doses of whiskey or brandy every three hours; if the patient is an alcoholic, more is recommended. Morphine or codeine are seldom needed; if they are, we prefer codeine. With the diagnosis we have made, salicylatis would be indicated. Many authors state that the salicylates locally in the throat are antistreptococcic, either bactericidal or antitoxic. If sodium salicylate is used, it is better given intravenously, because of gastric irritation; 30 to 60 grains in 20 c. c. of water, two to four times daliy. Rectal medication may be used supplementary, or alone in children (100 grams in six ounces of water daily, single dose). I would say that salicylates were indicated in massive doses, either as aspirin up to 500 grains or until patient is salycilized with ringing in ears and some tingling, or sodium salicylate. This latter plus antistreptococcic serum offers the only specific treatment, and the only treatment other than supportive given in the New York Hospital. Other measures that should be tried with septicemia are transfusions of intravenous saline if too little fluid, with adrenalin, pituitrin and caffeine, sodium benzoate, carbon dioxide and oxygen. As for quinine, or camphor and creosote, if their effect is pneumococcidal as some men contend, they are valueless in streptococcic pneumonia. There is, of course, no call for surgical intervention; the case is entirely medical until the pneumonia is relieved.

Report of Autopsy by Dr. H. P. Mills.

The body is that of a well nourished and well developed white male adult.

Examination confined to the thorax and abdomen. Usual incision was made, the breast plate removed and the left lung removed. It was quite heavy and crepitant in the upper lobe, not crepitant in the lower lobe. On cut section there was a vast amount of fluid escaped from both lobes, the lower lobe showing patchy areas of hyperemia. The right lung was firmly adherent by numerous bands to the parietal pleura; these were broken and the lung removed. On removing the lung there was one abscess cavity in the upper lobe which was broken through and a thick, bloody fluid expressed. The lower lobe presented an area along its outer margin of compression and collapse. This area was covered over by fairly firm, fibrous material. Cut section on the right lung shows a consolidation of the entire lung. There is abscess formation involving the middle and a small portion of the upper lobe. There is an old unresolved pneumonia process of the lower lobe, gray in color.

The heart was small. No excess amount of pericardial fluid and no evidence of valvular or myocardial disease. The left coronary artery showed patchy areas of atheroma, otherwise no pathology.

Abdomen: Liver was pale and quite firm. Gall bladder was collapsed, no stones or no evidence of any lymph nodes around the cystic or common ducts. The appendix was retrocecal and bound down by one or two firm, fibrous bands. The right kidney was slightly enlarged, capsules strip easily. On cut section the cortex was normal with some areas of hyperemia present. No excess amount of fat present. The left kidney apparently the same. Spleen was enlarged to about three times normal size and was very friable on cut section.

Anatomical Diagnosis:

Right lower pneumothorax with adhesive pleuritis.

Right lobar pneumonia involving all the lobes with abscess formation.

Hypostatic congestion, left lobe with patchy areas of hyperemia.

Some arteriosclerosis of coronary arteries.

Septic spleen.

General Discussion.

DR. H. P. MILLS:—It is difficult to harmonize the history of a few days illness with the postmortem findings; e. g., the empyema and cavity formation. The streptococcic pneumonia and breaking down of lung tissue could have occurred in a few days, but if the empyema pocket was of long standing, some of the other pathology probably was also. I think the man was sick a longer time than the history indicates.

DR. HOWELL RANDOLPH:—A brother of the patient said that he had had pneumonia twice in the past four years. Was it pneumonia or something else? Was it spontaneous pneumothorax with empyema? The salicylates were used primarily for pain in this case. Morphine is indicated where there is much pain and codeine seemed to give him considerable relief.

DR. W. W. WILKINSON:—We have heard pneumonia discussed at this hospital and at the Good Samaritan Hospital, and at neither institution have we heard diathermy mentioned in the treatment. It is one of the things which the physicians should bear in mind in treating pneumonia.

DR. R. B. RANEY:—I recall this man as coming up before the Veterans' Bureau several times, so that he must have had a chronic illness. When he

came into the hospital he certainly was very sick, with physical signs of extensive lung disease. This patient had definite cavity in the apex which had existed for some time, with dissemination and formation of an upper right lobe pneumonia. There was a solitary abscess from which the infection probably disseminated.

DEATHS IN GOOD SAMARITAN HOSPITAL, (Phoenix.)

(March, April and May, 1931).

J. D. Hamer, M.D.,
Chairman of Records Committee.

There were twenty-one deaths in March.

Case 10755 was a premature child who expired 18 hours after birth, autopsy showing numerous areas of atelactasis.

Case 10678 was a premature child who expired on the seventh day after birth from broncho-pneumonia. This case was autopsied.

Cases 10907 and 10980 were both premature babies of about seven months.

Case 10838 was a premature, one of twins, who died eight days post-delivery.

Case 10788, an infant of one month, expired on the pediatric service of toxemia from diarrhea, bilateral ototis media, and possible septicemia. This child was found living with its parents under the South Central Ave. bridge in a very critical condition at the onset.

Case 10835, a male of 28 who expired from advanced pulmonary tuberculosis, complicated by severe hemorrhage.

Case 10822, a female of 50, whose clinical diagnosis was bronchopneumonia, dry pleurisy and acute dilatation of stomach and duodenum. The essential findings at autopsy were bronchopneumonia of right lung, massive hyperemia of left lung, old tuberculosis of both apices, slight hypertrophy of left side of heart atheroma of ascending aorta and sclerosis of coronaries, and chronic glomerular nephritis. The duodenum was dilated.

Case 10992, a male of 71 who expired of myocarditis, with associated chronic nephritis.

Case 10904, a male of 55, diagnosis of essential hypertension, cardiac hypertrophy, compensated, vascular nephropathy with insufficiency, and diabetes mellitus. There was some question about this patient having a low-grade meningitis due to certain symptoms, but a study made before death quite ruled out this possibility, as well as that of neurosyphilis.

Case 10789, a male of 43, died of cerebral hemorrhage, attending a case of tertiary lues. An autopsy showed a large antemortem clot filling the entire left lateral ventricle.

There were four deaths on the surgical service.

Case 10949 and Case 10736 were both deaths from acute appendicitis, ruptured, with peritonitis. The first was complicated by an intestinal obstruction, six days after the surgery was done, and necessitating reopening the abdomen.

The second case, 10736, was a child of 3 years. The operative notes of the surgeon state that the appendix was enlarged and reddened, but point of rupture was not found. Much pus was in the abdomen, and the mesentery was hemorrhagic. Pathological report of the appendix was "walls fibrous, section shows slight lymphoid hyperplasia, but no recent inflammatory changes." This case again illustrates the advisability of trying to make the clinical, operative and pathological findings agree, as stated on our charts Here is a case where the surgeon definitely states that he finds no ruptured appendix, and the pathologist states there is no recent inflammatory change; yet the final summary record states the diagnosis of "ruptured appendix."

Case 10745, a male of 12, who expired following surgery for an acute appendicitis, with abscess formation and peritonitis. This case developed an obstruction and was re-operated the third day after the initial surgery.

Case 10811, a male of 42, moribund when operated, with a diagnosis of intestinal obstruction, which was thought to be either from a ruptured appendix, malignancy or ruptured liver abscess with peritonitis. Nothing was done at operation but a colostomy, due to the patient's condition and extensive purulant peritonitis. Expiring four days later the body was opened at autopsy, and a complete stenosis of the bowel at the level of the mid-portion of the descending colon was found, together with generalized peritonitis.

Case 10777, a male of 47, who expired from a basal skull fracture.

Case 10781, was an infant of 3, badly mangled in an accident, the essential injuries being fractured skull, intra-cranial hemorrhage, fractured pelvis, and ruptured bladder.

Case 10842, femals of 36, who died from the effects of a gunshot wound, with injury to the cervical cord. Surgery was contemplated, but not attempted.

Case 10939 was another child of 5 years, who expired as the result of an accident, receiving fracture of femur and tibia of right leg, fractured skull and fractured right clavicle.

Case 10870 was a man who received a fractured skull when thrown from a moving freight train. A trephine was done on this case for the alleviation of pressure. An autopsy was done.

Summarizing, we have 21 deaths as follows: Six premature babies, one infant on the pediatric service, five on the medical service, four on the surgical service and five due to acts of violence and accidents. There were six autopsies.

During the month of April there were thirteen deaths, as follows:

Case 11223 was a woman, who expired from extensive body burns, following an explosion of an oil stove.

Case 11157, a male of 61, died of concussion of the brain, and fracture of the skull, complicated by a pneumococcic meningitis, as determined by examination of the spinal fluid. One curious phenomenon was the presence of positive agglutination test with all three types of the pneumococcus.

Case 11041, a female of 55, who lived for four days after being stricken by cerebral hemorrhage.

Case 11250, a woman who committed suicide by ingesting a large amount of bichloride of mercury.

Case 11097, a male of 70, entered the hospital April 7, and expired April 10. His condition was extreme upon admission, and the chief cause of death was a cardio-vascular-renal combination.

Case 11313, an infant of 3 months, expired of acute intestinal indigestion and pyelitis.

Case 11067 was a case of prematurity and icterus neonatorum.

Case 11081, was a premature with bronchopneumonia.

Case 11188 was an infant of 3 months with anhydremia, acute acidosis, gastroenteritis, and broncho-pneumonia.

Case 11096, an infant of two months, with pyloric stenosis was operated upon, and expired the fol-

lowing day. The cause of death is reported as broncho-pneumonia.

Case 11045 was an old man of 88, who expired from shock while under an anesthetic, and during the process of a Cotton reduction and application of a double spica cast to a broken left femur.

Case 11205, a female of 19, who developed signs and symptoms of pelvic infection three days postpartum, with peritonitis, and was operated upon on April 24, one week after her admission, because of the onset of an intestinal obstruction. A cecostomy was done. Patient expired six days later.

Case 11276, a female of 39, expired as the result of toxemia of pregnancy, and an old nephritis with suppression of urine. A valiant but vain effort was made to save this patient's life by supportive treatment, intravenous medication and fluids, and as a final resort, the introduction of the Vorheis bag to induce labor, but she expired because she did not respond to any treatment.

Summarizing, we have thirteen deaths, and no autopsies. Three deaths from acts of violence and accidents, a burn case, a fractured skull, and a mercury poison case. Two cases on medical service, a cerebral hemorrhage, and one from a cardio-renal syndrome. Two cases of pediatrics, one an acute intestinal indigestion and pyelitis, and one from anhydremia and broncho-pneumonia. Two premature babies, and one eclampsia on the obstetric service; three cases on the surgical service, one case of peritonitis following a pelvic infection postpartum, one under anesthesia from shock attending old age, and one case of pyloric stenosis following operation.

During the month of May there were eighteen deaths, as follows:

Twelve of the eighteen deaths in the hospital during May were on the medical service, and are classified as follows:

Male of 79, decompensation of heart, and aortic regurgitation.

Male of 82, interstitial nephritis and aortic regurgitation.

Male of 61, acute catarrhal jaundice.

Male of 38, bronchial asthma, and non-specific encephalitis probably an allergic intoxication.

Male of 18, hemophilia and epistaxis.

Male of 55, multiple sclerosis and arteriosclerosis of heart and kidneys. (Autopsy.)

Male of 49, primary carcinoma of stomach, with metastasis to liver and right lung; secondary anemia.

Male of 69, chronic nephritis and myocarditis.

Male of 58 abscess of right lung.

Female of two years, gastro-enteritis.

Female, age not stated, pulmonary tuberculosis with hemorrhage and myocarditis.

Female of 3, probable streptococcus blood infection and status lymphaticus; an autopsy on the case indicated to the pathologist that the child probably expired of an acute leukemia, lymphatic in type, and status lymphaticus.

One death from accident, was a female of 51, who expired from concussion and contusion of the cerebrum.

Five deaths occurred on the surgical service. Children with ruptured appendices continue to lead the list, as they have in the past few months. There were three last month, one female, age 7, and two boys, both age 13.

Also, a male of 53, after cholecystectomy, with a diagnosis of chronic cholecystitis, with periduodenal adhesions, chronic peptic ulcer, expired of cardiac failure.

The other death on the surgical service is to be discussed, that of a thyroid case.

I wanted again to call attention of the staff to a few matters which are vital in the routine classification of causes and minor causes of death. In addition, there are numerous other bits of information, which, if incorporated would greatly assist in correlating our material, both for statistics and for study. This is particularly true of postoperative morbidity and mortality. It was not so many years ago that the survival of a patient from some major type of operation was considered a triumph, and when complications arose that were not wholly the result of an operation, such as shock or hemorrhage the incident was regarded as unavoidable, and for which there could be no blame attached to the surgeon. But that attitude has changed, and it should be our aim to keep abreast of the times in the Good Samaritan Hospital. This must be so in order to maintain the required standardization and credit among the hospitals. There is nothing to indicate to us the trouble with a patient, what was done for him, and what became of him, except from the chart.

We must realize that the greatest hope of reducing the mortality of surgery rests on the constant and critical discussion of the causes of surgical treatment, on the causes of death, accurately recorded, and on postoperative complications. The factor of postoperative complications is being studied more and more over the world in medical centers, and from this study no doubt will continue to pour into literature many contributions on the causes and effects, and information dealing with the treatment. I have noticed, in our records, that this one phase of our case record is neglected badly. Our charts are improving, for statistical purposes especially in the incidence of postoperative complications, and in the proper correlation of the clinical diagnosis with postmortem findings in fatal cases. I would suggest that we summarize our clinical diagnosis of all pathological conditions according to their importance, then give a summary of the autopsy findings, if one is done, and I would suggest that we carefully study postoperative complications, and accurately record them.

Take, for instance the postoperative pulmonary complications. We find here on our charts on some occasions not even major estimations of postoperative morbidity, and causes of mortality. In an analysis of the causes for this condition, one could blame some of them on carelessness, forgetfulness or lack of concerted actions and agreement of nomenclature on the part of different members of the staff, or to failure to record the minor complications in non-fatal cases, or in the diversity of interpretation given to common pathologic states by the different members of the staff. Also, by a lack of postmortem information on most of our cases. Records of the lungs for instance refer to the complications as pneumonia, bronchitis, or pleurisy, occasionally with such diagnostic variations as broncho-pneumonia or lobar pneumonia. We do not systematize our efforts at differentiation between the purely infectious, inflammatory and the embolic or infarct pneumonia, and perhaps we could even mention atelectasis, which, of course has only recently come into prominence in clinical discussions. And so it is with the heart and vascular system, the abdomen, or blood stream. We can at least try to diagnose with reasonable certainty the exact cause of postoperative morbidity or mortality.

THE NEW MEXICO MEDICAL SOCIETY

FORTY-NINTH ANNUAL MEETING, AT ALBUQUERQUE, NEW MEXICO, MAY 20-22, 1931.

May 20, 1931.

The Forty-Ninth Annual Meeting of the New Mexico Medical Society, convened at Albuquerque, May 20, 1931, despite the general business depression, set a new record for attendance, as well as a new standard of quality and excellence in the scientific sessions.

Registration headquarters were established in the Hotel Alvarado, where all business and scientific sessions were held.

Meeting of the Council.

Called to order by the President, Dr. R. O. Brown (Santa Fe), at 9 a. m., there were present: Ex-officio members, Drs. R. O. Brown and L. B. Cohenour; members, Dr. Carl Mulky (Albuquerque), Dr. W. T. Joyner (Roswell), Dr. C. W. Gerber (Las Cruces), Dr. C. B. Elliott (Raton).

Minutes of the last meeting were read and approved.

Financial report of the Treasurer, Dr. L. B. Cohenour (Albuquerque), was read by him, as follows:

"Gentlemen: I hereby submit a report of the financial affairs of the New Mexico Medical Society ending this date:

Balance on hand at annual report June 4, 1930	$1,551.57
Delinquent dues collected, 2 members 1930	10.00
Annual dues, 10 new members	50.00
Annual dues, 8 members 1930	40.00
Annual dues collected for 1931 from 213 members	1,065.00
Cash from Dr. C. F. Beeson by mistake	10.00
Total cash received to May 20, 1931	$2,726.57

Disbursements

Reporter for 1930 meeting (Balance half fee)	$ 100.00
Secretary's salary for 1930	300.00
Southwestern Medicine for 234 members for 1930	468.00
Reporter for 1931 meeting (advance half fee)	100.00
Treasurer's bond for 1930-1931	5.00
Southwest Printing Co., 300 programs for State Meeting at Raton, N. M.	35.00
Commercial Service Co., L. C. Typewriter $105, less credit on old typewriter of $20	85.00
Gordon-Horton Co., 250 2c stamped envelopes	7.46
Gordon-Horton Co., 250 letter heads	4.25
Albuquerque Stationery Co., Financial Journal	2.75
Western Union Telegraph Co. Legislation on Naturopath Bill	4.62
Gordon-Horton Co., 250 2c stamped envelopes	7.50
May 1, 1931, Refund to Dr. C. F. Beeson (on $10 per capita too much)	10.00
Total expenditures for 1930-1931	$1,129.58
Total balance on hand May 20, 1931	$1,596.99

Outstanding Indebtedness

Southwestern Medicine, dues 213 members	$ 426.00
Secretary's salary for 1930-31	300.00
Reporter for 1931 meeting (balance half fee)	100.00
Medical Directory for 1931	15.00
Treasurer's bond for 1931-1932	5.00
Approximate total	846.00

Expected Balance after all bills are paid....$ 749.99

Respectfully submitted,
(Signed) L. B. COHENOUR,
Secretary and Treasurer."

Motion that the Treasurer's Report be accepted and approved as read was made by Dr. Gerber (Las Cruces), seconded by Dr. Mulky (Albuquerque), and carried.

The President, Dr. Brown, spoke in regard to work done by the Legislative Committee in connection with attempt to have a Basic Science Bill passed at the Legislature. A bill was drawn up after the model sponsored by the American Medical Association and introduced in both Houses. The Committee in the House, to which it was referred, finally voted, by a majority of one, to report it unfavorably but this was held up with the thought that perhaps later a more favorable vote could be secured; however, it was plainly seen later that there would be no chance at this time for favorable action. The Naturopathy Bill was referred to the House Committee, was reported favorably, and the House went into it as a whole. The Bill finally passed the House and got as far as a public hearing in the Senate. Colonel Gilbert, a lawyer in Santa Fe, conducted hearings for the State Medical Society and did such a good job of it that the Bill was finally laughed out of court. While it is regretted that the passage of a Basic Science Act was not accomplished, yet in the matter of education, it is felt that much was accomplished. Expenses incurred were $9.80 for telegrams and $50 fee of lawyer in drawing up and working on the Bill.

Dr. Brown further stated that Drs. Joyner and Ingalls from Roswell came up to Santa Fe and were of much assistance and that he thought their expenses should be taken care of by the Society. Dr. Joyner stated that Dr. Ingalls and he went to Santa Fe on their own responsibility to a great extent, that they were very much interested and felt that every man who was interested should go and do what he possibly could in getting a Basic Science Bill through and the Naturopathy Bill defeated. The Naturopathy Bill was virtually a similar proposition to that of the chiropractors and the work done by Dr. Brown was what defeated it. Just such measures as this, he said, are going to arise from time to time, which we must fight, and while the Society appropriated $500 at the meeting last year for the purpose of meeting expenses in connection with this work, he had no thought, so far as their personal expenses were concerned, that they would be paid out of this fund. Dr. Mulky expressed the opinion that the expenses of Drs. Joyner and Ingalls should be paid by the Society. Dr. Brown stated that they were of great assistancee to him and he thought likewise they should be reimbursed the amount of their expenses.

Motion was made by Dr. Mulky that Drs. Joyner and Ingalls be reimbursed to the extent of $60 ($30 each), on account of expenses incurred in connection with trip to Santa Fe and work on the Basic Science Bill, seconded by Dr. Gerber, and carried.

Motion by Dr. Cohenour that Dr. Brown be reimbursed for expenses of telegrams, $9.80, and legal services, $50.00, was seconded by Dr. Gerber and carried.

The Secretary, Dr. Cohenour, read applications for membership in the Society from the following, stating that dues had already been paid, and since the applications had been approved by the component county societies, they had virtually been accepted:

New members: Dr. W. A. Onstein, Taos, N. M.; Dr. G. L. Langworthy, Hobbs, N. M.; Dr. M. D. Moran, Farmington, N. M.; Dr. Byron B. Thorpe, Tucumcari, N. M.; Dr. A. J. Burch, Reserve, N. M.

Reinstatement: Dr. C. Plumlee, Roy, N. M.; Dr. C. J. Amble, Mountainair, N. M.

Membership was granted to each upon favorable vote.

Dr. Joyner, referring to the work of the Councillors, stated that originally one councillor was appointed for each Judicial District, at which time there were six Judicial Districts, and therefore there are six councillors. Now there are more than six Judicial Districts and it would seem there should be a reapportionment of councillors to cover the new districts and each councillor should be informed as to just what territory he should cover.

The President appointed as a committee, Drs. Elliott, Mulky and Joyner, to lay out the districts each councillor is supposed to cover, to report at next meeting.

The Secretary, Dr. Cohenour, read a letter from Dr. H. W. Gibbs, Las Vegas, N. M., dated March 24, 1931, in regard to the San Miguel County Society, stating in effect that no meeting has been held for at least four years and there is practically no organization.

Dr. Joyner expressed the opinion that this was a matter for the Councillor for that District.

Motion for adjournment was carried with the understanding that another meeting would be held Thursday morning at 8:30 a. m., May 21, 1931.

House of Delegates

Called to order by the President, Dr. R. O. Brown (Santa Fe) at 9:30 a. m. Present: Dr. R. O. Brown (Santa Fe), Dr. L. B. Cohenour (Albuqueqrque), Dr. W. H. Woolston (Albuquerque), Dr. W. T. Joyner (Roswell), Dr. C. F. Milligan (Clayton), Dr. F. D. Vickers (Deming), Dr. H. A. Ingalls (Roswell), Dr. E. E. Royer (Albuquerque), Dr. Troy C. Sexton (Las Cruces), Dr. R. L. Bradley (Roswell) and Dr. E. C. Mathews (Albuquerque).

Minutes of the meeting of the Council were read and approved.

The President, Dr. Brown, spoke in regard to work done by the Legislative Committee in connection with attempt to have a Basic Science Bill passed, reiterating his remarks made at the Council meeting.

The Secretary, Dr. L. B. Cohenour, read his annual report as follows:

"Gentlemen: I hereby render a report of the affairs of the office of Secretary-Treasurer for the term ending with this session:

"At the meeting held in Raton, N. M., June 4, 1930, there were 10 members suspended for nonpayment of dues, and immediately following ten members reinstated and ten new members were admitted to the Society following this meeting, by affiliation with County Societies.

"Members in the Society at this time are as follows:

	1930	1931
Bernalillo County	45	52
Chaves County	19	20
Colfax County	15	18
Curry County	12	10
Dona Ana County	11	11
Eddy County	9	5
Grant County	16	18
San Miguel County	6	5
Luna County	6	6
McKinley County	11	11
Santa Fe County	17	16
Union County	9	9
Members at Large	37	32
Total in good standing this date		213

"Seven applications for membership were received to be presented at this meeting and membership cards issued to them in advance. No deaths of members of this Society occurred during the past year.

Respectfully submitted,
(Signed) L. B. COHENOUR,
Secretary and Treasurer."

Motion by Dr. Troy Sexton (Las Cruces) that the Secretary's report be approved, as read, was seconded by Dr. R. L. Bradley (Roswell), and carried.

The Secretary read the applications of five for membership and two for reinstatement, which had already been acted upon favorably by the Council.

Dr. R. O. Brown (Santa Fe), announced that as a delegate from the Santa Fe County Medical Society, he had been instructed to invite the Society to hold its next annual meeting at Santa Fe.

The Secretary read a telegram dated Santa Fe, N. M., May 19:

"Dr. M. K. Wylder, Presiding Officer, New Mexico Medical Society Convention, Albuquerque, N. M.: Santa Fe Chamber of Commerce sends you and through you to the delegates in Convention assembled cordial greetings and best wishes, and equally cordial invitation to hold next Convention here.

CARL A. BISHOP, President.

Action was deferred until the business meeting of the House of Delegates, for election of officers.

Dr. Cohenour (Secretary) read a letter from the Colorado State Medical Society, dated Denver, Colo., January 21, 1931, as follows:

"Dear Dr. Cohenour: Our Committee on Scientific Work, in charge of the program for our next annual session, to be held in Colorado Springs, September 15, 16 and 17, directed me to invite you and the other officers of your Society to attend the meeting as Fraternal Delegates. The thought occurred to the Committee that perhaps some representative of your Society would like to appear on our program with a timely paper and, if such is the case, we should like very much to have your suggestions. With this in view it should be borne in mind that our Committee is endeavoring to complete arrangements for the program by March 1st. In any case I trust we shall have the pleasure of greeting several members of your Society as our guests in Colorado Springs next September.

"Sincerely,
COMMITTEE ON SCIENTIFIC WORK,
By Harvey T. Sethman,
Executive Sec'y."

Afetr informal discussion it was decided to defer this matter until the meeting set for election of officers.

Dr. Cohenour (Secretary) read a letter from Dr. Kemper, of the Colorado State Medical Society, which proposed that the official journal of that organization, now known as "Colorado Medicine," be changed to "Rocky Mountain Medicine," and become the official journal of New Mexico as well as Colorado and Wyoming. Dr. Brown (President) stated that he had heard something in regard to the proposition from the Director of the Bureau of Public Health, who is one of the Editors of Colorado Medicine, and that he would like to know the opinion of the members on the subject. Dr. Joyner (Roswell) stated that he did not see how the matter could be taken up without the consent of the Arizona State and El Paso County Medical Societies; that the New Mexico State Society had one-third interest in Southwestern Medicine, which is the official journal of the three organizations, as well as the Southwestern Medical and Surgical Association. Dr. Mulky (Albuquerque) suggested that the proposition should be taken up with the other Societies as well as the New Mexico State Society. The President suggested that the Secretary correspond with Dr. Kemper and suggest that the question be taken up with the Arizona State Society,

the El Paso County Medical Society and the Southwestern Medical and Surgical Association.

At this point Mr. Harvey T. Sethman, Executive Secretary of the Colorado State Medical Society, entered and was asked to explain the movement. Mr. Sethman stated that it had been the dream of a number of men in Colorado for a good many years that there should be an amalgamation of interests in medical publication of the so-called Rocky Mountain States; that the matter was taken up by the House of Delegates at the meeting last year and authority given to the Committee on Publication to invite the neighboring states not now associated with Colorado Medicine to unite with them and expand all into a Rocky Mountain Journal. The Journal at the present time is about the fourth largest in the country and is the official sponsor of the Colorado State Medical Society, the Wyoming State Medical Society and the Colorado Hospital Association. Wyoming has no hospital association. The Publicity Committee has extended invitations to Montana and to New Mexico. While not wishing to be in the position of using any high-pressure salesmanship to bring this about, it is desired that the matter be considered, as it would be of great mutual advantage to the Rocky Mountain States. He presented letter dated Colorado State Medical Society, May 18, 1931, as follows:

"To Officers and Delegates of the New Mexico Medical Society Convention in Albuquerque, N. M., Greeting: Under authority of the House of Delegates and the Committee on Publication of the Colorado State Medical Society, it becomes my privilege to extend to your Society an invitation to designate Colorado Medicine as your official journal.

"May I call to your attention the following resolution unanimously adopted by the House of Delegates on September 9, 1930:

"BE IT RESOLVED by the House of Delegates of the Colorado State Medical Society that the Committee on Publication and the Executive Secretary are hereby jointly empowered to invite on behalf of this Society the recognized medical societies of other States in the Rocky Mountain region to designate the official journal of this Society as the official journal of their Societies.

"BE IT FURTHER RESOLVED that the Committee on Publication and the Executive Secretary are further jointly empowered to execute such contracts with such other State Medical Societies as, in the judgment of the Committee on Publication and the Executive Secretary, are proper and necessary to effect the establsihment of a working plan for the inclusion of such additional State Medical Societies in the sponsorship of the official journal of this Society.

"Leaders of medical thought in our State and in Wyoming have for many years planned that the diagnostic and therapeutic problems of all states in the Rocky Mountain Region are so similar that a common journal for this region would be of great value. They believe that such a journalistic enterprise will constitute a progressive step and will form the foundation for a more logical representation of medical thought in the Rocky Mountain tier of states than now exists.

"Colorado Medicine now is the official organ of the Colorado State Medical Society, the Wyoming State Medical Society and the Colorado Hospital Association. Our own House of Delegates has, through an amendment of our By-laws, authorized our Committee on Publication and our Board of Trustees to change the name of Colorado Medicine to some name that would more properly describe the journal as representative of the principal Rocky Mountain States. The name will be changed as soon as one additional state besides Wyoming joins with us in this enterprise. Should your Society consider this invitation favorably, we should naturally desire to confer with you as to a proper name for the expanded publication.

"It is quite natural that, before your Society would be willing to ratify definitely such a merger of interests, you would wish to know in full detail what our Journal could offer you. In this regard may I say that it will be a pleasure for such officers of our Society as are empowered to complete any necessary arrangements to meet with the appropriate officers of your Society at your convenience.

"It is the hope of our officers and our House of Delegates that after careful deliberation your Society will see with us the mutual advantages of the arrangement suggested and that in the not too far distant future negotiations may be completed for uniting in the publication of a Rocky Mountain Medical Journal.

"By order of the Publication Committee under authority of the House of Delegates.

(Signed) HARVEY T. SETHMAN,
Executive Secretary."

Dr. Brown asked if any overtures had been made to the Arizona State Medical Society or to the El Paso County Medical Society, to which Mr. Sethman replied "No! not as yet, the Publication Committee has full authority of the House of Delegates to work out all details with the Trustees, but so far invitations have been issued only to the New Mexico and the Montana State Societies."

Adjournment 10 a. m.

General Session

The meeting was formally opened at 10 a. m., the call to order being made by the President, Dr. R. O. Brown (Santa Fe).

Invocation was delivered by Dr. George Weber.

Dr. James F. Zimmerman, President of the University of New Mexico, was introduced, and expressed his pleasure at having the honor of giving a word of welcome to the medical profession of New Mexico—a welcome that carried an invitation to every man working in the profession to forward a program of health preservation and all things that go to make up a cleaner life and better citizenship. Dr. Zimmerman deplored the fact that there is no medical college at the University and the men taking up pre-medical work having to go elsewhere to complete their courses, are thus confronted by a very difficult problem. He suggested that an Institute of Health might be created and all those engaged in medical research work or health problems, whether rural sanitation, infant mortality, child welfare, or other forms, cooperate and further such a movement. This would be of great service to physicians, surgeons, and other scientists, and would be of great value in the study of tuberculosis and other diseases. He also advocated health demonstrations and talks in communities, at county fairs and other public gatherings, as an aid in educating the public towards bettering health conditions.

Dr. Crum Epler (Pueblo, Colo.), in response to the address of welcome by Dr. Zimmerman, called attention to the fact that he is virtually a member of the Society since he always attends the annual meetings, deriving much pleasure and benefit therefrom, since the New Mexico doctors are not only good medical men, but genuine, real fellows, and for this reason visitors, particularly visitors from the sister state from which he comes, Colorado, are always glad to meet with them.

Dr. Brown (President) in introducing Dr. M. K. Wylder (Albuquerque), incoming President, remarked he was afraid he might not now enjoy the meeting as much as some of the others, since he would no longer have a chance to talk without danger of an argument.

Dr. Wylder, in his opening address, besides touching on medical legislation in which the profession

was misunderstood, urged the profession to think in terms of the patient and not in terms of pathology and disease, in administering service.

In referring to cults, Dr. Wylder said: "I believe that we owe a great deal to the cults and should, perhaps, let them alone, for they do two things for us by their activities. They stimulate us to better work, and once in a while, they do discover a grain of wheat in many bushels of chaff and regular medicine does now and always has, gladly, and I might say anxiously, appropriated any beneficial measure that has been brought out from no matter what source. Homeopathy taught us to modify the enormous doses that were in vogue a hundred years ago; the Eclectics taught us to give more attention to the relief of symptoms; the Osteopaths, while working on a false premise, developed some methods that have been adopted by the Physiotherapists, and the Christian Scientists have emphasized the cultivation of optimism, hopefulness and cheerfulness."

Dr. Hugh Jones (Los Angeles, Cal.), in a lecture on "Plastic Reconstructive Surgery of the Extremities," presented slides and moving pictures of various interesting cases, including a congenital web finger; a contracture of knuckle joints following injury by fallen timbers; a large bump on leg from a compound fracture; scarring on front of shin from severe burns; scar contraction of axilla due to burn from scalding water; and others. He emphasized the fact that, in reconstructive plastic surgery, each case is a definite problem in itself and there is no fixed or set rule which can be followed in this class of work.

In discussion, Dr. J. R. Earp, Director of the New Mexico State Bureau of Health, brought up the possibility of repairing the wreckage of war and industry with "spare parts" of victims who had been killed. He recalled an incident occurring during the war. A girl working in a wartime industrial plant had been virtually scalped in an accident and was placed in the improvised hospital to which he was attached. Shortly after, a bomb was dropped near the building by a party of German air raiders and among those killed was a very beautiful young girl, with a fine head of hair. It seemed a great pity not to try to transplant the scalp of the girl just killed to the girl in the hospital who needed and wanted one so badly, but the Chief refused to sanction the attempt.

Dr. Crum Epler (Pueblo) asked Dr. Jones what he did to prevent keloids and scars following grafting.

In closing the discussion, Dr. Jones expressed the belief that grafting the scalp from one person to another would not be successful, that skin grafting from different persons had been tried, but does not pay, and skin from the patient alone is successfully used. He recalled Dr. Mann's telling him that he was not convinced that skin could not be grafted from one person to another, and advising him, if he did that work, to be sure to take pictures of it because there were only two or three cases in the literature in which such grafts had been successful.

"I thought he was wrong, and when I had a child whose skin was severely burned and whose mother was in the same blood group, I made a graft from her which took perfectly. I had pictures taken of it and told Dr. Mann all about it. At the end of two weeks everything looked fine. Shortly after this, however, the child had to go home, and not long after, the physician who was caring for the case told me every one of the grafts turned black and came off except some little pieces which I had taken from the child itself, and those pieces lived. I have tried a number of times since to make grafts from other persons, but without success. Dr. Mann tried to graft kidneys from one man to another. They lived for a few months, but never healed entirely. We make use of radium, which softens the skin remarkably and takes a lot of the keloid away.

Adjournment for luncheon.

Luncheon, Alvarado Hotel

At the luncheon session, Attorney Henry H. Clark, of Gillett & Clark, Denver, Colo., addressed the assembly on "Medical Jurisprudence." He referred to the days when common law did not permit a physician to sue and recover pay for his services. The theory of the law followed the etiquette of the profession and forbade him contracting for pay for his ministrations, so obliged him to receive whatever a patient chose to give him. At present, the consensus of opinion in both the medical and legal profession is that practitioners are not required to take chances, but may themselves appraise the value of their services. While a physician is not bound to accept a call, once he has taken a case, he is expected, under law and ethics, to give it his best services, and the patient is obligated to pay him a just compensation. The patient also contracts to obey the doctor's orders and to give him a full and complete description of his case. The physician is not required to guarantee a cure, or be responsible for success or failure, unless it is due to his lack of ability or failure to exercise ordinary care. As to the nature of suits frequently brought against doctors for alleged malpractice, Mr. Clark said that he had defended cases involving the following conditions:

1. A shortened leg, resulting from a re-fracture and a re-setting of a badly united bone.
2. Volkman's paralysis or contracture of a boy's hand claimed to have been caused by too tight bandaging of a broken arm.
3. Alleged blood poisoning from use of bad serum.
4. Miscarriage caused by alleged wrong prescription.
5. Burns caused by electrical treatment for eczema.
6. Burns from hot-water bottles following operations.
7. Drainage tube entering thoracic cavity and not removed for six months.
8. Ill health following operation for a prolapsed kidney.
9. Death of baby in childbirth (which case took four weeks to try and in which nineteen doctors testified).
10. Alleged re-fractured neck of femur from breaking of overhead pulley rope suspending a twenty-pound bag of shot.
11. Death from alleged illegal operation (which in fact was not performed).
12. Severing of ureter in operation for removal of cancer of cervix of uterus.
13. Hernia and other disabilities following operation for lacerated perineum (cystocele and rectocele.
14. Setting of a boy's fractured arm without an open operation, necessitating a second operation.
15. Premature removal of bandages following a reduction of a dislocated shoulder in an elderly woman, causing permanent re-dislocation.
16. Alleged unnecessary amputation of leg following infection from a gunshot wound.
17. Alleged fracture of sacrum by an osteopath in reducing a sacro-iliac dislocation.
18. Amputation of leg following infection alleged to have been caused by use of the Steinmann pin.
19. Sponge alleged to have been left in abdomen following an appendectomy, and being removed *per ani* several months later.
20. Burning and permanently disfiguring a woman's face by use of radium to remove birthmark.

21. Breaking of bones and crippling patient in an effort to remedy flat feet.

22. Use of fifty per cent silver nitrate solution in error for a two per cent solution in case of acute conjunctivitis, destroying eyesight.

Afternoon Scientific Session.

Dr. William C. Finnoff, Department of Ophthalmology, University of Colorado, Denver, Colo., opened the afternoon program with a paper entitled "The Relation of the Eye to General Diseases," in which he stressed the value of ophthalmoscopic examinations, since many times some general disease is discovered thereby, often otherwise not detected. Dr. Finnoff claimed the ophthalmoscope should be in more common use than the syhygmomanometer, for it gives more accurate information regarding the state of the blood vessels, in addition to throwing light on other obscure conditions. He also mentioned the perimeter and other instruments for the examination of the visual fields as of great value in uncovering certain pathological conditions, but stated that these have a limited field of usefulness and belong to the field of ophthalmology. General diseases with obvious ocular manifestations were mentioned, as toxic goiter with exophthalmos, palsies of the extraocular muscles, ptosis or drooping of the upper eyelid occurring after paralysis of the elevator muscle of the upper lid, paralysis of the cervical sympathetic, in which the syndrome of Home's occurs, usually due to pressure from tumor masses in the neck or enlarged lymphatic glands.

Dr. Finnoff divided defects in the field into four groups: (1) those due to diseases of the eyeball, viz., glaucoma, chorioretinitis, optic neuritis, optic atrophy, and so forth, which are usually independent of general diseases; (2) those due to lesions of, or to the effect of pressure on, the visual tracts or centers in back of the eyeball; (3) those due to the absorption of toxins (toxic amblyopia); (4) functional. The first group is of interest only in making a differential diagnosis, but the second is of extreme importance.

In the discussion, Dr. R. O. Brown (Santa Fe) asked as to the best method of examining the fundus and if there is any distinctive movement of the eye that goes with postsyphilitic Parkinson's syndrome. He mentioned a case he had treated in which the trouble dated back to the end of the war. The patient had a retrospasm of the eye, the eyeball would go around and finally turn up. After working the case out as postsyphilitic Parkinson's syndrome, under proper treatment the muscles of the eye cleared up.

Dr. S. D. Swope (El Paso, Texas) expressed his appreciation of Dr. Finnoff's paper, stating that men engaged in neurology or psychiatry can hardly do without the opthalmologist; that it is his routine practice to send all cases to the ophthalmologist and ask his report on the subject, and frequently ophthalmologists send cases to him for light on nerve conditions or on the matter of diagnosis of the condition found, the reports of the ophthalmologist frequently being of great advantage in making a diagnosis. Dr. Swope remarked that one of the unusual things he runs up against, which, however, is very simple to the ophthalmologist, is the peculiar pigmentation of the nerve in dark-skinned people. He also commented upon the changes in the activity of the muscles of the eye in Parkinson's syndrome.

Dr. G. W. Griswold (Roswell) complimented Dr. Finnoff on the able manner in which he covered a very extensive subject and, speaking from the standpoint of erroneous diagnosis, recalled the case of a young man about 30 years of age, who had a very severe double lobar pneumonia, in which his colleague assured him only three small doses of ethyl hydrocupreine had been given. In 24 hours the dimness of vision of which he had complained became total, following which, for fully thirty days, he had no light perception, after which it gradually returned and cleared up entirely.

Dr. Finnoff, in closing the discussion, advocated the use of the method that seemed best and appealed to the physician most in making examinations of the fundus. "The direct method," he stated "has advantages over the indirect in that you can see minute changes that are not possible with the indirect method. A comparison might be made in the use of the low power of the microscope with the high power. You get a higher power microscopization with the direct method. With the ophthalmoscope, it is very easy to master the examination of the fundus and especially with some of the newer frames, the fundus can be satisfactorily examined with undilated pupil. In Parkinson's disease, one occasionally finds a rotary or mixed nystagmus. It is possible, with a ptosis and a mixed nystagmus, that there might be some lesion in the cerebellum as the cause. There is a marked difference in the pigmentation in persons with light complexion from those of dark skin, those with dark complexion having more pigmentation. The case of bilateral neuritis that followed ethylhydrocupreine may possibly have been an optic neuritis from the pneumonia and not due to the other. Usually cases of quinine blindness are permanent."

Dr. T. E. Carmody (Denver, Colo.), in an address on "Some Points in Bronchoscopy," mentioned the metallic form of foreign body as the easiest to diagnose, then the vegetable or non-opaque foreign body. Diagnosis was generally done by the stethoscope, but of late years by the x-ray. It has been only in the last fifteen years that very good diagnoses have been made by the x-ray of the non-opaque or vegetable foreign bodies. Infection in the bronchial tubes is due to the aspiration of a foreign body: it may be a metallic foreign body, a vegetable foreign body, a clump of bacteria, or a clump of cells that degenerate. In the last few years, we can make diagnosis of tumor of the lung by means of the bronchoscope. Dr. Carmody showed many interesting slides of foreign bodies in the bronchus, and x-ray pictures in connection therewith.

In the discussion, Dr. S. D. Swope (El Paso) asked in regard to hematogenous abscess of the lung.

Dr. R. O. Brown (Santa Fe) asked if the bronchial activities clear up without operation on the sinuses, or whether that is necessary.

Dr. W. A. Gekler (Albuquerque) asked if there are any data as to whether there is any delayed absorption in bronchiectasis.

In closing the discussion, Dr. Carmody said there is no question but that we have hematogenous abscesses of the lung, but whether blood-borne or from aspiration, we cannot always tell. We always find, in these cases, infection of the sinuses and aspiration sometimes of particles of infected material from the tonsils. In using the aspirator, we very frequently find that the plug will hit the aspirator, and from that standpoint I feel that practically all are aspirated and very few are blood-borne. Moving the bronchoscope from one side to the other will cause cough. "Dr. Brown asked if bronchiectasis cleared up without operation on the sinuses. I do not think so; I do not think we ever get a cure. In many of these bronchial cases, we have a loss of many layers of epithelium; we must have a loss of some of our muscular and subcutaneous tissue, and they never clear up entirely. Posterior drainage will help all of these cases. I have a case now of a little child who was bringing up about a cupful a day. After clearing up the sinus, she has gone down to about 1¼ ounces, but will probably not reduce much further though her sinus is entirely clear."

Dr. S. D. Swope (El Paso) presented a paper entitled "Brain Injuries," in which he brought forth that injuries of the brain can be divided into four classes: those resulting from external violence; those resulting from infection (of the encephalon or its covering membranes, by some hemolytic, morbific agent), acute, chronic, general and localized in character; those arising from new growths (of biologic origin); and those arising from psychic shock. Those injuries arising from external force may be divided into concussion, compression, compound and comminuted fractures of the bony protection, with lacerations and punctures resulting. As to hemolytic infections, the bountiful supply of the circulation within the brain makes infection throughout the blood stream easily accomplished. A blood stream infection is a constant menace to cerebral injury. In regard to compound comminuted fractures of the bony vault, they are serious in proportion to the injury done to the underlying structures. The most common injury is compression due to the depression of the bone. The next most frequent is infection, which may be either local or distributed by the circulation to any part of the brain substance. If we can be assured there is no serious injury to the brain substance or its covering membranes, and can remove the pressure and prevent infection, we need not be anxious about the results, regardless of the extent of the injury. The commonest morbific agent we have to contend with in brain infections is influenza bacillus. Then we have diphtheria, scarlet fever, measles, rabies, mumps, malaria, vaccines, and even tapeworm and others, to think about. Then we have cerebral syphilis, with its baleful influence on the central nervous system, including the mental conditions. Relative to treatment the most important element is diagnosis, and the most difficult element of the diagnosis is its physical character and regional distribution. Pressure upon the cerebral tissue should be removed at the earliest possible moment commensurate with the conditions existing, whether that pressure be from external pressure (depressed bone) or internal pressure from hemorrhage, edema, swelling, hydrocephalic conditions, or neoplasms. Spinal puncture with manometric control gives a means of controlling a considerable percentage of intracranial pressure. Cisternal puncture and ventricular puncture are justifiable and practical, but are extreme measures which should be in the hands of experts only.

In discussion, Dr. John R. Evans (Denver) stat-

(Continued on page 438).

BOOK REVIEWS

CLIO MEDICA. INTERNAL MEDICINE, by Sir Humphrey Rolleston, Bart., G.C.V.O., K.C.B., M.D., Hon. D. Sc., D.C.L., L.L.D., Regius Professor of Physics in the University of Cambridge, England. Paul B. Hoeber, Inc., New York. $1.50.

Rolleston has done an endless amount of reading in the compilation of this volume. He refers to the works of about 225 medical scientists, beginning with the earliest writers on medical subjects and ending with the outstanding modern ones. He depicts the development of internal medicine to the specialty it now is. The book is most reasonable. It is of the usual excellent standard in production of Paul B. Hoeber, Inc.

O. H. BROWN.

MEDICINE IN THE BRITISH ISLES, by Sir D'Arcy Power, K.B.E., F.R.C.S., Eng.: Consulting Surgeon, St Bartholomew's Hospital, Honorary Librarian at the Royal College of Surgeons of England, London. Paul B. Hoeber, Inc., New York.

The history of medicine in the British Isles is largely a history of various medical corporations such as the College of Physicians, The Barber Surgeons Company, The Surgeons Company, The College of Surgeons, The Society of Apothecaries, and so forth.

This is an interesting volume, another of the Clio Medica series.

O. H. BROWN.

DISEASES OF THE SKIN, A Text Book for Practitioners and Students, by George Clinton Andrews, A.B., M.D., Associate Professor of Dermatology, College of Physicians and Surgeons, Columbia University; Consulting Dermatologist and Syphilologist to Tarrytown Hospital; to St. John's Hospital, Yonkers; to Grassland's Hospital; and to the Broad Street Hospital, New York City; Fellow of the New York Academy of Medicine, of the American Medical Asosciation, and of the American College of Physicians; Member of the American Radium Society, of the New York Roentgen Society, and of the Manhattan Dermatological Society. W. B. Saunders Company, Philadelphia, and London. 1930. Price $12.00.

Dr. Andrews says that the motive power in the preparation of this book was a desire to keep himself up to date in the tried and conservative principles of dermatology. The book is truly an encyclopedia of diseases of the skin. Every chapter has appended an exhaustive bibliography. For example the paragraphs entitled "Affections Due to Sunlight" has 20 or more references; "The Treatment of Radiodermatitis" has probably 60 references. So it is with every important subject. The book is not simply the author's experiences but seemingly is a digest of all that is known. It is profusely and beauitfully illustrated. A paging through the book and studying the pictures and legends is a liberal education in dermatology. A reading of the paragraphs on sensitizations, allergy, anaphylaxis proves to the reviewer that Dr. Andrews has a clear thinking analytical mind.

O. H. BROWN.

STALKERS OF PESTILENCE, by Wade W. Oliver, M.D., Professor of Bacteriology, Long Island College Hospital; Visiting Professor, University of the Philippines (Auspices of the Rockefeller Foundation). Paul B. Hoeber, Inc., New York.

Two hundred pages of a small book covering the entire field of medicine from antiquity to the present would seem to be impossible. Dr. Oliver has done just this. The book is most readable. I know of no work saying one-half, or perhaps even one-tenth as much in even a far greater number of pages.

No matter how familiar one may be with the facts of medical history he will enjoy this delightful narrative. The physician who is not familiar with the subject will find this book most practical for giving a comprehensive review of the salient features of medical progress of all time.

The layman will not find it difficult to read.

O. H. BROWN.

HISTORY OF HAITAN MEDICINE, by Robert P. Parsons, Lieut.-Com., M.C., U.S.N., Foreword by Edward R. Stitt, Rear Admiral, M.C., U.S.N., with 21 illustrations and a folding map of Haiti, Paul B. Hoeber, Inc., New York, $2.25.

The history of Haitian Medicine is most entertaining. It was a wonderful opportunity to step into a virgin field, barren of civilized medicine reeking in disease and establish an up-to-date clinic, the medical schools, hospitals and a public health department. Never before has there been the opportunity to detail just such a story. Dr. Parsons has told it succinctly and modestly and therefore is all the more impressive.

O. H. BROWN.

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NORTHEASTERN MEXICO MEDICAL ASSOCIATION

The following interesting report of the second annual meeting of the Northeastern Medical Association of Mexico has been furnished by Dr. W. R. Jamieson, of El Paso.

"I have just returned from Torreon, Mexico, where I attended the second annual meeting of the Northeastern Medical Association.

Leaving El Paso at 6 a. m. Monday, Sept. 15th, I arrived by plane at my destination at 10:45 a. m. I was met at the airport by Drs. Salvador de Lara, President and Alberto Madrid, Secretary. The latter is a member of the Medical and Surgical Association of the Southwest.

At the Casino, the principal social club, I registered. At 1:30 p. m. a lunch was served at the Alperca Esperanza, a beautiful spot about two miles outside the city. After lunch, the program was taken up and several very interesting papers were presented.

The following day there were clinics at the Hospital Civil (City Hospital) and the Hospital Espanol, a private institution. This was followed by another lunch given in one of the downtown restaurants by the representative of one of the drug manufacturing concerns. This was very elaborate. After lunch the reading of papers was continued. In the evening, the session came to a close with a business meeting.

Later in the evening, the annual Independence Ball took place in the Casino wwhich was very well attended by the beauty and the chivalry of Torreon and the surrounding country.

I extended to the meeting a most cordial invitation to attend our meeting in Phoenix. Dr. Alberto Madrid, a member of the program committee of our Association told me that he has about six men lined up already who intend to be present. As he is a man of great energy and personality. I am sure that by the time the meeting takes place he will have several others come with him.

Many physicians and surgeons of prominence from all over the country were present, including Dr. Luis Rivero Borrell, President of the National Medical Association, Dr. Leopoldo Escobar, President of the National Hospital Association, Dr. Ulises Valdes, Secretary General of the Department of Public Health and many others. Dr. Pedro de Alba of Mexico City made the principal speech at the closing session and never have had the opportunity and pleasure of listening to such beautiful sentiments clothed in Spanish of purest Castilian as he put forth to the assembled profession.

I had the great pleasure of renewing old friendships made when I practiced in Torreon. Dr. Adolfo Mondragon, Dr. Julio Castrillon, dean of the profession in the Laguna, Dr. Jose Cuevas, Dr. Leopold Escobar, formerly of Torreon, now of Mexico City and others.

On Wednesday I left by plane for El Paso at 1:10 p. m. arriving in El Paso at 5:40 p. m."

It is hoped that this visit by the president of our Medical & Surgical Association of the Southwest to a sister organization of our southern neighbor will inaugurate a closer fellowship between the medical groups of the two nations.

DATA FOR ARIZONA MEDICAL HISTORY

In the April 1931 issue of Southwestern Medicine the request was made that each Arizona physician give a biography of himself according to the outline suggested at the time. Several physicians have complied with the request.

We are again asking that this biography be supplied. There are no funds for this work and it is a laborious task.

If each member will take upon himself to supply his own data and such other as he can, especially about deceased members, it will materially help out in this wonderful work we are undertaking.

In the front of this Journal is a page which can be torn out and used for this purpost.

LOREN CALL BARLOW

Dr. Loren C. Barlow was born April 8, 1895 at Bountiful, Utah. He was educated in the University of Utah, and the Iowa State College at Ames. He came of a pioneer Utah family who had lived in the west for many years. He served in the air forces

of the United States Marines during the World War. After discharge from the army he undertook to operate a large ranch but the desire to study medicine that he had had since a youth could not be submerged. It was then that he was determined to study medicine and have the work that would be of the greatest joy to him. He went to Washington University, St. Louis and graduated in 1926. He served an internship in the service of Dr. Willard Bartlett in the Missouri Baptist Sanatorium in St. Louis.

After the year of interne service he associated himself as assistant to Dr. Willard Bartlett and thus was afforded him an unusual opportunity to gain surgical experiencce and judgment. In May of 1929 he moved to Phoenix, Arizona and associated himself with Dr. Orville Harry Brown where he had two good years in surgical practice.

He married Irene Smith of Logan, Utah, June 2, 1920. Much of Dr. Barlow's success can be directed to his good wife who was ever cheerful and helpful to him in his efforts in getting an education and establishing himself in surgery.

There are two children, Rachel and Loren Jr., nine and five years of age who will remember their father with a great deal of pride.

Dr. Barlow's charming smile, his radiance of good cheer, his general optimism, perseverence and integrity made him a delightful associate, husband and parent. His excellent training and his seasoned judgment made him a surgeon superior to what his age might have indicated.

He was a diplomate of the National Board of Medical Examiners, a member of the Phi Beta Pi Medical Fraternity, and a Fellow of the American Medical Association.

Dr. Barlow died on June 2, after a very brief illness with an extremely malignant attack of epidemic meningitis.

WILLIAM CLYDE ELLIS

Dr. Wm. C. Ellis, a practitioner of Phoenix for a quarter of a century died in July of cancer of the tongue. Dr. Ellis continued his work up to within a few weeks of his death which occurred while on a vacation in northern Arizona.

Dr. Ellis was born in 1875, was a graduate of the Medical College of Ohio, Cincinnati, in 1899. He located in Phoenix in 1907 and became one of the leading business men of the city, as well as a prominent member of the profession. He bulit the Physicians' Building and a larger office building known as the Ellis Building. He was a member of the local and national medical associations; he was the first chairman of the staff of the Deaconess Hospital, when that staff was organized. He served one term as mayor of Phoenix. He is survived by his widow and a daughter.

PUBLIC HEALTH NOTES

J. ROSSLYN EARP, Dr. P. H.
Director New Mexico State Bureau of Public Health.

BEDBUGS AND TYPHUS

To us in the Southwest typhus and the typhus-like diseases are of particular interest. To the south of us is a reservoir of Mexican typhus, or tarbardillo; to the north of us a reservoir of Rocky Mountain spotted fever. At the present time the tendency is to emphasize the differences to be found between these typhus-like diseases, and the failure to secure cross immunity between them is certainly striking.[1] The clinical differences are much less impressive and might easily be explained by differences in the dosage or virulence of virus injected by different vectors, rather than by an essential difference in the virus itself. Recent evidence points strongly to incrimination of the rat flea (either *Xenopsylla cheopsis* or *Ceratophyllos fasciatus*, or both) in the spread of Brill's disease in the East. Is the flea also the important vector of tarbardillo? Dr. Hans Zinsser is rather inclined to accuse the bedbug. They bite anybody and anything, he says, and under any circumstances. They are not caught flagrante delicto because when they have fed they go home again and do not live on the animal, as the flea does. Moreover, Dr. Zinsser has kept typhus virus alive in bedbugs both by feeding them on typhus rats and by rectal injection of the virus. He draws attention to the fact that tarbardillo is much more common in Mexico City, at 7,500 feet, than in the hotter climate of Vera Cruz, though regular communication is held between the two towns. He would not have expected the flea to flourish so successfully at the altitude of Mexico City. The bedbug, he thinks, might easily do so, and experience of bedbugs at 7,000 feet in New Mexico convinces us that he is right. However, Dr. Maxcy, reviewing the epidemiological evidence, does not believe that the bedbug plays an important part in conveying typhus virus to man. New Mexico experience would seem to suppoort this contention, too, for, whereas bedbugs are abundant, reports of typhus are few and far between. But should the infected rat, with its cohort of fleas, ever become established in our midst, the bedbug might well prove to be a sinister ally.

QUACKERY

Quacks have more lives than a cat. Even Umckaloabo was able to find a champion in the British House of Commons at its last session! And the worst of it is that when one nostrum has been discredited, there is always another (or perhaps the same one with a new name) ready to take its place. The one fundamental remedy is education, and the plea of Dr. Ivy at the last annual session of the American Medical Association, that human anatomy and physiology be taught in our high schools, is worthy of our energetic support. In the meantime we should like to congratulate the National Better Business Bureau (Chrysler Building, New York) upon the splendid campaign they are carrying on against the advertisement of worthless "remedies." Their circulars exposing the same are sent to periodical publishers throughout the country and copies reach our office. We wish them all success.

The sale of nostrums and the practice of quacks are very definitely a menace to the public health.

The American Social Hygiene Association has recently reprinted an article by one of its staff, entitled "Herbalists and Other Charlatans," which deals especially with yogis and the "professors" who diagnose and treat the venereal diseases in the city of Chicago. He estimates that many tens of thousands of dollars are collected annually in that city by these sharks. They diagnose gonorrhea and syphilis "by pressing on the patient's palms, by looking into his eyes, or by getting the date and place of his birth." Their prices run from 50 cents for a bottle of "medicine" to $75 for a complete treatment with cure guaranteed. And those of their victims who really have a venereal disease are likely to believe in the cure for which they have paid so well and to go forth infecting others of like intelligence. The Bureau of Health will always lend its aid to fight quackery and to educate the public in sales resistance to the charlatan.

REFERENCES

1. Dyer, R. E. et al: The Typhus--Rocky Mountain Spotted Fever Group in the United States. Journal A.M.A., 97, 589 (Aug. 29) 1931.

2. Publication No. 745, Americal Social Hygiene Association, 450 Seventh Avenue, New York, N. Y.

THE AMERICAN COLLEGE OF PHYSICIANS
San Francisco, 1932.

The American College of Physicians will hold its Sixteenth Annual Clinical Session at San Francisco with headquarters at the Palace Hotel, April 4-8, 1932. Following the Clinical Session, a large percentage of the attendants will proceed to Los Angeles, where a program principally of entertainment will be furnished April 9, 10 and 11.

Announcement of the dates is made particularly with a view not only of apprising physicians generally of the meeting, but also to prevent conflicting dates with other societies that are now arranging their 1932 meetings.

Dr. S. Marx White, of Minneapolis, is President of the American College of Physicians, and will arrange the Program of General Sessions. Dr. William J. Kerr, Professor of Medicine at the University of California Medical School, San Francisco, is General Chairman of local arrangements, and will be in charge of the Program of Clinics. Dr. Francis M. Pottenger, of Monrovia, is President-Elect of the College, and will be in charge of the arrangements at Los Angeles. Mr. E. R. Loveland, Executive Secretary, 133-135 S. 36th Street, Philadelphia, Pa., is in charge of general and business arrangements, and may be addressed concerning any feature of the forthcoming Session.

THE NEW MEXICO MEDICAL SOCIETY

(Continued from page 435).

ed he was particularly interested in Dr. Swope's paper and believes that too much attention is given to operative obstetrics as producing brain injuries.

Dr. Swope, in closing, remarked that, while he did not touch upon the obstetrical side, he did mention that instrumental delivery and the over-expansion of the uterine musculature might be responsible for a large share of these injuries. "The toxic state we find in advanced labor and all the way through pregnancy in certain persons, may be due to some disturbance to the brain circulation, but I have always set it down in my mind as due to some glandular disturbance."

The concluding number on the day's program was a Skin Clinic conducted by Dr. George P. Lingenfelter, Professor of Dermatology and Syphilis, University of Colorado, Denver. Numerous cases were brought to Dr. Lingenfelter for diagnosis and comment, one of especial interest being that of "athlete's foot,' which Dr. Lingenfelter stated is caused by a ringworm infection and is often acquired in the gymnasium or swimming pool. The disease, while curable, is likely to recur, but whether through reinfection or through the fact that the germs undergo alternating periods of quiescence and activity, has not yet been determined.

SECOND DAY—MAY 21, 1931.
Meeting of the Council.

Called to order by the President (Dr. M. K. Wylder) at 8:30 a. m., there being present: Ex-officio members, Drs. M. K. Wylder and L. B. Cohenour; members: Dr. W. T. Joyner (Roswell), Dr. C. W. Gerber (Las Cruces), Dr. C. B. Elliott (Raton), and Dr. R. O. Brown (Santa Fe).

Minutes of the last meeting were read and approved.

Motion was made by Dr. W. T. Joyner that Dr. R. O. Brown (Santa Fe) be elected to fill the vacancy this meeting due to the absence of Dr. Harry Mera. Seconded by Dr. Cohenour and carried.

The Committee on Reassignment of Councillor Districts recommended such Disrticts to be as follows:

District No. 1: Dr. C. B. Elliott, Councillor, to cover Counties of Union, Colfax, Harding, Mora and Taos.

District No. 2: Dr. Harry Mera, Councillor, to cover Counties of Santa Fe, Rio Arriba, San Juan. McKinley and San Miguel.

District No. 3: Dr. Carl Mulky, Councillor, to cover Counties of Bernalillo, Sandoval, Torrance, Valencia, Socorro and Catron.

District No. 4: Dr. H. A. Miller, Councillor, to cover Counties of Curry, Roosevelt, Guadalupe, Quay and De Baca.

District No. 5: Dr. W. T. Joyner, Councillor, to cover Counties of Chaves, Eddy, Lea, Lincoln and Otero.

District No. 6: Dr. C. W. Gerber, Councillor, to cover Counties of Dona Ana, Luna, Hidalgo, Sierra and Grant.

Dr. W. T. Joyner (Roswell) made motion that the recommendation of the Committee be adopted, which was seconded by Dr. Cohenour (Albuquerque) and carried.

Dr. Joyner stated that the councillor should take a very active part in the building up of the Society, in securing new members and getting the eligible men to join, and he thought that each councillor should be required to make a report each year as to conditions in his district.

Dr. M. K. Wylder (president) stated that if a councillor was forced to make trips in connection with his work in his district, it seemed only right that the Society should defray his expenses.

Motion was made by Dr. L. B. Cohenour (Albuquerque) that the State Society be authorized to pay the actual expenses of councillors in the performance of their duties in organizing county societies and obtaining new members in their districts. Seconded by Dr. C. B. Elliott (Raton) and carried.

Dr. W. T. Joyner (Roswell) made motion that each councillor be required to visit each organized society in his district this year and make report at the next Annual Meeting. Seconded by Dr. L. B. Cohenour (Albuquerque) and carried.

Dr. R. O. Brown (Santa Fe) made motion that when the president requests a meeting of the councillors between the general annual meetings of the Society, that the expenses of the councillors be paid by the Society. Seconded by Dr. Joyner and carried.

Adjournment 9 a. m.

Diphtheria Antitoxin

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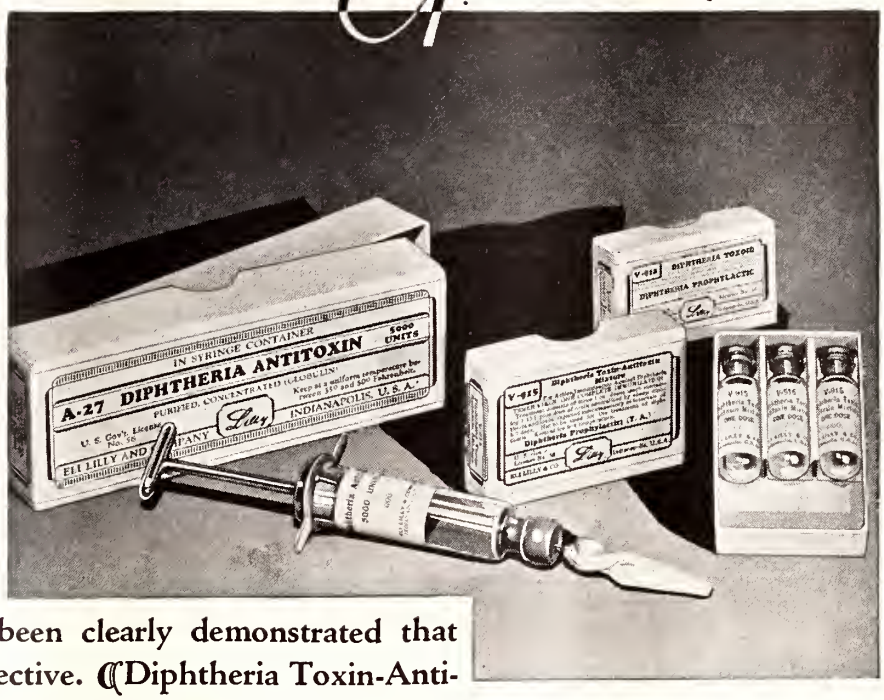

Parents should be encouraged to have their children actively immunized against diphtheria. It has been clearly demonstrated that immunization is effective. ¶Diphtheria Toxin-Antitoxin Mixture, Lilly, 1/10 L^+ dose diphtheria toxin partially neutralized by sheep antitoxin, is available in single treatment packages of three 1 cc. vials and in packages of 10 vials for ten complete treatments. ¶Diphtheria Toxoid, Lilly, for immunization against diphtheria, is diphtheria toxin altered by the action of a dilute solution of formaldehyde and heat. It contains no serum. Excellent results have followed the use of two doses of Toxoid. Available in two 1 cc. vials; also in 30 cc. vials for fifteen immunizations. ¶Diphtheria Antitoxin, Lilly, for the treatment of diphtheria, is a carefully prepared product of small volume, low total solids, and sparkling clarity. It is free from non-essential proteins. Supplied in convenient syringe packages. ¶To determine natural immunity or immunity acquired by the use of Toxin-Antitoxin, use the Schick Test. ¶All Lilly Products are supplied through the drug trade. Write for further information.

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Morning Scientific Session.

Dr. John W. Amesse, President of the Medical Society of the City and County of Denver, Colo., was the first speaker of the morning scientific session, presenting a forceful paper on "Sources of Infant Mortalit iny the Western States." "It will come as a distinct shock to the thinking public of these intermountain states," Dr. Amesse said, "to learn that this favored region, 'sitting eternal in the sun' and blessed by the Creator with so many other privileges and advantages denied sister commonwealths to the east, has the highest infant mortality in this country. The surprise is complete when we recall that here, where plain and mountain meet, we have a maximum of sunshine, the highest index of ultraviolet light, the lowest humidity ,a population almost entirely native born; in general, good water supplies, and in most districts, a carefully supervised milk supply. There are practically no congested tenement districts, no great number of women gainfully employed, no sweat shops, no special health hazards such as malaria, hookworm and pellagra." Dr. Amesse referred to the average infant death rate in the registration area of 66 per thousand live births, Wyoming reporting 70, Colorado 91, New Mexico 145, and Arizona 133, and advised that leading medical and sociological groups in Denver, with complete cognizance of the situation and of the inconsistencies involved, finally succeeded in initiating an intensive study of infant and maternal mortality to continue from March 1, 1930, to March 1, 1932. The objectives of this serious study are to determine if the mortality figures released by the Census Bureau are correct and to determine, if possible, the factors which are contributing to a death rate which from every viewpoint is abnormal. The survey has clearly shown that economic conditions are a direct factor contributing to morbidity and mortality at the threshold of life. In families with an annual income of $3,000 or over, the death rate is 30 per thousand live births; with $2,000 the rate is 54; with $1,500 it is 57; between $1,000 and $1,500 it is 96 and for family incomes under $500, the rate is 170. The age of the mother is also a well-recognized element in determining both infant and maternal losses. Among mothers under 20 years of age, the infant death rate was 118 per thousand, with mothers 20 to 25 years old, it was only 73, while with those from 35 to 45, it was 121. Dr. Amesse also referred to the fact that "no consideration of death rates in these sparsely settled commonwealths can long exclude the factor of industrialism. A large migrant population is responsible for a very appreciable increase in our mortality."

In opening the discussion, Dr. George P. Lingenfelter (Denver) congratulated Dr. Amesse on his very interesting portrayal of an appalling condition, and, while agreeing that the death rate is dependent in a large proportion on the economic status of the family, called attention to the fact that there are some types of races more prolific than others, and generally it is among this class of people that smallpox, leprosy, and other contagious diseases are found. He also referred to diphtheria, stating that a method of treatment had been developed for the diphtheria carrier, which has shown most excellent results.

Dr. J. R. Earp (Santa Fe) stated that he is extremely interested in the subject and hopes the Department of Statistical Research of the Bureau of Business and Social Research of the Denver University, which has complete control of the tabulations in connection with the survey, would publish the results when completed. "In regard to the higher death rate among the poorer classes, this is only natural because they receive less medical care and housing conditions are insufficient. Some years ago a study was made at Johns Hopkins of the infant mortality rate according to age groups and it was found in that study that the younger the mother is, the less risk there is in the mother and child. There is a considerable difference between that and the Denver experience, but possibly the younger Denver mothers were among the poorer class. The Johns Hopkins experience was on a much smaller number of cases, however, and then in Denver, the high infant mortality in the first days of life was attributed to the fact that they consider it a live child as soon as it breathes. In New Mexico, our problems are almost entirely rural. There is so much territory to cover that we do not know what the babies are dying from, as more than half of them are never seen by a doctor before they die."

Dr. S. D. Swope (El Paso) expressed his enjoyment of Dr. Amesse's paper. stating that the mortality rates shown are certainly a danger signal which all should thoroughly appreciate; that most of our larger cities have made some provision for these conditions, such as the lying-in hospitals of New York and San Francisco, but in the smaller cities and towns at the present time there is practically no provision made whereby prospective mothers of the poorer class can have intelligent attention during their confinement.

Dr. R. O. Brown (Santa Fe) stated that there are conditions in New Mexico which seem to make it absolutely impossible to guarantee a physician for every woman about to become a mother. He wondered if any comparison had been made in Denver as to the death rates between women attended by physicians, and those attended by midwives.

Dr. C. F. Milligan (Clayton, N. M.) expressed his belief that the high death rate is due to lack of education of the public and perhaps a lack of interest on the part of physicians in taking care of these cases. Many times midwives are engaged who can neither read nor write, and the doctor is not called in until something goes wrong; then it may be too late. "We could possibly have some of these women taken care of by physicians if we went about it in the right way, but many of the doctors are specializing these days and are not interested in prenatal care."

Dr. R. W. Mendelson (Albuquerque) mentioned one difficulty in the way of educating the public, in that some people are too dumb to be educated. He referred to the death rate in the tropics, where in some places it runs to 400 per thousand and others 150 per thousand, but this has been reduced of late years and is really not so bad considering the fact that they are sitting on top of the equator. In comparison with the figures quoted by Dr. Amesse, it would seem we are very lax in the United States where there is supposed to be such a high degree of civilization. Dr. Mendelson said he was very strong for taking the proposition of childbirth out of the hands of the so-called midwife.

Dr. F. D. Vickers (Deming) referred to the passing of the family physician of the old days, stating that fully 50 per cent of the graduates of medical colleges fit themselves to become specialists, before leaving college.

In closing, Dr. Amesse expressed gratitude for the very generous discussion accorded his paper and, in illustration of the tendency of young medical graduates to specialize, told of an incident at a Denver College. Among the number who expressed determination to become specialists was one young man who, when asked as to his intentions, replied, "Well, since it looks as though everything else has been taken care of, I will specialize on the nostril." "Which one?" he was asked.

Dr. Amesse gave as his opinion for the high death rate three things, ignorance, poverty, and neglect. "As to the question of Dr. Brown about the rela-

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tive death rates of those cared for by midwives and those cared for by physicians, it is exactly the same. However, a midwife will carry a woman on to the the point of death and then call in the doctor, so she is indirectly responsible. She will carry a labor case to a point where no man can save it, and then call the physician. The whole proposition is entirely an educational problem and when you cannot educate a person, then you are strongly inclined to use a club."

Dr. James Vance (El Paso, Texas) next presented a paper entitled "Personal Observations of Cholecystitis," in which he depicted personal experiences with gallstone colic and subsequent operation. Dr. Vance remarked that "it is a peculiar thing about cholecystitis that the condition may persist for years with slight or no symptoms, and then burst into a fury that drives the patient to operation sooner or later in spite of all that can be done by the skilled internist, by both medicines and diet. In the earlier stages the diagnosis may be, and often is, very difficult. Gallstones, one of the latest developments of cholecystitis, may not give sufficient distress to be even noticed by the patient. Severe typical gallstone attacks are as a rule easily diagnosed, but it must be remembered that epigastric pain frequently occurs in cholecystitis without stones, that is nearly or quite as severe as a gallstone attack. Cholecystitis without complicating diseases, is ever the story of more or less continual, nagging, gastric indigestion and pain, and soda-water taking. The hunger pains of gastric and duodenal ulcer are nearly always absent. Empty stomach and intestines in cholecystitis insures freedom from pain."

Dr. S. D. Swope (El Paso) congratulated Dr. Vance upon his paper, which, he stated, "is of great importance to all of us. He describes exactly the symptoms he had and tells us exactly what we should do if we undergo a like ordeal. He has given us a clear-cut idea of the condition from the viewpoint of the patient and told how it should be cared for by the surgeon."

Dr. Vance, in closing, stated that the subject was entirely too great to cover in one paper, or to take up any one phase of it; that he merely wanted to make such personal observations and comments as appealed to him. "Pain in the epigastrium is a very common thing, and all these cases should be thoroughly worked out before operation. They should first be worked out from the medical standpoint; then, if they do not progress properly with medical treatment, the surgeon should be called in without delay. As far as the necessity for surgery in early cases of cholecystitis is concerned, I do not think it advisable; all surgery should be done most conservatively, excepting in cases in which it must be done at once, and then there should be no delay."

The next speaker, Dr. Dan G. Stine, Professor of Internal Medicine, University of Missouri, Columbia, Mo. presented a paper on "Hypertensive Disease,"—"a disease," he declared, "characterized by increasing arterial tension that has passed 140 mm. of mercury systolic over 90 mm. diastolic, in an individual under terial tension that has passed 140 mm.. of mercury systolic over mm. diastolic, in an individual under 40; or 150 mm. systolic over 100 mm. diastolic, in an individual over 40. As to etiology, as yet no one etiological factor has been proved the cause of the disease. A few of the many theories as to the cause are: that it is due to an unbalance of the internal glanular secretions, particularly of the adrenals, the pituitary and the ovary; autointoxication is a favorite theory and purgation plays a frequent and most beneficial role in the treatment of the disease. One of the most striking clues to the etiology is eclampsia; beginning with the muscular cramps in the legs in pregnancy, which resemble closely the muscular cramps in the legs of hypertensive patients, and continuing through the kidney and liver damage which so often ends with persistent arterial changes and hypertension following the acute attack. the similarity to hypertensive disease is striking. Other theories are that hypertension is due to long continued spasm of the arterioles due to a neurosis affecting chiefly the sympathetic system; that allergy causes the arteriole spasm. The most attractive theory, however, is that of calcium deficiency and the retention of certain metabolites. There is no better description of the individual than that given by Moschowitz: 'The patients are overweight and sometimes even obese. The neck is short, their bodily movements are sluggish, their carriage and walk are ungraceful and they lack the spring and elan of the former athlete. Psychically, these people are tense; they pursue their vocation with tremendous seriousness and worry over trivialities. In consequence, they are irritable. Phlegm and hypertension are antagonistic. Furthermore, these individuals have narrow intellectual horizons; their interest in anything outside their business is desultory. They have no hobbies. In their leisure hours they play cards, sit in the theatres, read the newspaper or rehearse the business activities of the day. Sleep is not restful and they do not believe in vacations.' Death in hypentensive disease may be vascular. from cerebral hemorrhage; cardiac, with sudden death in coronary occlusion; the more prolonged death from congestive heart failure; or the development of uremia and death in coma. Under treatment. the most sure method of bringing about a relief from the symptoms of the disease is rest, long continued mental and physical rest. Next in importance is diet—not in character of food, but in its amounts. These individuals are large eaters and are usually obese. It is well to limit their intake of food to such an amount that will maintain their weight at something slightly less than the average for their height. Salt is restricted to a moderate amount. As to drugs, luminal is useful to allay mental irritation: coronary dilators are useful when indicated: digitalis will aid a crippled heart; and calcium administered with the use of ultraviolet rays or the administration of irradiated ergosterol is helpful."

Dr. R. O. Brown (Santa Fe), in opening the discussion, asked if diet had been found of any value in hypertension, and if altitude had any effect upon hypertensive patients, stating that some claim high altitude is not a good thing in such cases, while others think it makes no difference. He mentioned the difficulty in persuading the highly energetic type of person, who works all the time and cannot be content unless busily employed at some-

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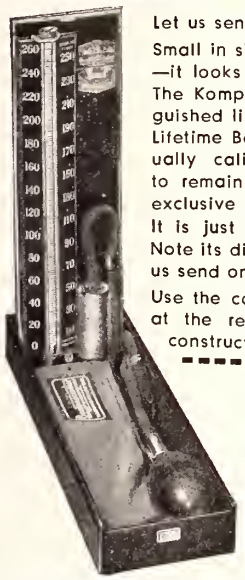

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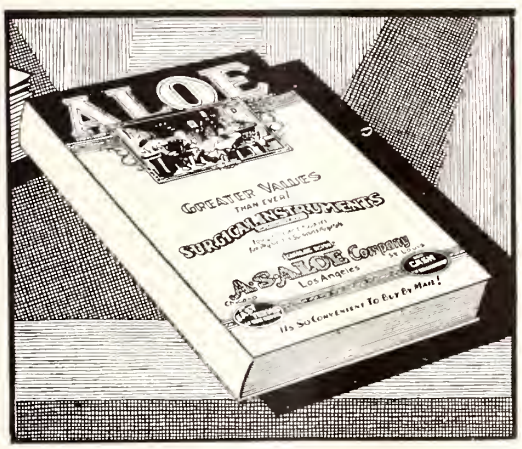

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thing, to take the rest cure so necessary in hypertensive cases.

Dr. S. L. Burton (Albuquerque) expressed his appreciation of the paper and said that the treatment of hypertension reminded him of his own condition. For years he was not able to take out life insurance on account of low blood pressure and an attack of pernicious anemia. He began the use of calves' liver gradually and in about a year blood pressure increased until hemoglobin is normal again.

Dr. James Vance (El Paso) stated that in surgery we run across a great many of these hypertensive conditions and his observation has been that farmers and laborers as a rule do not have hypertension. He wondered what effect beer drinking and alcohol had on hypertension.

In closing, Dr. Stine expressed the opinion that a salt-free diet is very beneficial in these cases, but the most we can hope for is from rest. He did not know anything about the effect of altitude, whether harmful or not, and while he has seen hypertension among farmers, it has been among those who have retired and no longer do the actual work of milking the cows, doing the chores, and so forth. Alcoholics have low blood pressure and alcohol, he believes, is not a factor in hypertension, though, while it seems to spare the arteries, it produces damage to the other parts of the body. Tobacco, also, he believed not a factor in the disease.

The concluding number of the morning program was a lecture by Dr. Frank Ridge, Kansas City, Mo., on "Modern Diagnostic Methods," in which he outlined a machine designed to completely diagnose cases, including psychoanalysis, without which no diagnosis is complete.

Dr. S. D. Swope (El Paso) complimented Dr. Ridge and said that this was something we have long been looking and waiting for and that if some of the doctors in El Paso would get such a machine, the balance of the physicians would have nothing to do.

Dr. N. H. Brush (Santa Barbara, Cal.) stated he was much interested, especially as regards the psychological procedure, but he wanted to object to one feature, in that it was stated that the average psychoanalysis takes six weeks, which is quite wrong, as it takes nearer three years.

Dr. Ridge, in closing, expressed his regret at being unable to get all the details of this wonderful machine and as to its psychoanalysis abilities was inclined to be a trifle skeptical.

Adjournment for luncheon, Alvarado Hotel.

AFTERNOON SESSION.

Meeting of House of Delegates.

Called to order by the President, Dr. M. K. Wylder (Albuquerque) at 1 p. m. Present: Dr. M. K. Wylder (Albuquerque), Dr. L. B. Cohenour (Albuquerque), Dr. Carl Mulky (Albuquerque), Dr. L. F. Elliott (Albuquerque), Dr. E. E. Royer (Albuquerque), Dr. E. C. Mathews (Albuquerque), Dr. O. I. Nesbit (Espanola), Dr. R. O. Brown (Santa Fe), Dr. R. L. Bradley (Roswell), Dr. H. A. Ingalls (Roswell), Dr. C. W. Gerber (Las Cruces), Dr. T. C. Sexton (Las Cruces), Dr. W. H. Woolston (Albuquerque), Dr. F.D. Vickers (Deming), Dr. C. R. Bass (Cimarron), Dr. C. S. Hart (Dawson), Dr. C. B. Elliott (Raton), and Dr. R. A. Duncan (Amarillo, Texas). Fraternal Delegate from Texas.

Minutes of the Council Meeting were read and approved.

Dr. R. A. Duncan (Amarillo, Texas), Fraternal Delegate from Texas, presented his credentials and letters from Dr. Willis H. Flamm, President Potter County Medical Society, and Dr. G. T. Vinyard, Councillor and President of the Third or Panhandle District, State Medical Association of Texas, extending to the New Mexico State Medical Association, a cordial invitation to meet with the State Medical Association of Texas, in Amarillo, at their next Annual Meeting in May, 1932. Dr. Duncan explained that it was not the intention that this be a joint meeting, but he wished the New Mexico Society would take steps to see that one man from New Mexico will appear on each section, of which there are seven.

President Wylder announced that the invitation would be filed and due notice taken thereof if proper men could be found who desired to prepare papers and attend the meeting. Election of officers was then proceeded with, with candidates for offices of:

President-elect: Dr. H. A. Ingalls (Roswell) was nominated by Dr. Troy C. Sexton, seconded by Dr. C. W. Gerber. Dr. F. D. Vickers (Deming) was nominated by Dr. Carl Mulky, seconded by Dr. R. O. Brown. Motion was made, seconded and carried that nominations be closed. Vote by ballot resulted in: Dr. Vickers 12; Dr. Ingalls 4.

Vice President: Dr. H. A. Ingalls (Roswell) was nominated by Dr. Caarl Mulky, seconded by Dr. C. B. Elliott. Motion that nominations be closed was seconded and unanimously carried.

Secretary-Treasurer: Nomination of Dr. L. B. Cohenour (Albuquerque), present incumbent, was made by Dr. H. A. Ingalls, seconded by Dr. Bradley. Motion that nominations be closed was seconded and unanimously carried.

Members of Council for Three Years, these to replace Dr. Carl Mulky (Albuquerque) and Dr. C. W. Gerber (Las Cruces), whose terms have expired. Motion was made by Dr. Troy C. Sexton that both these men be nominated to succeed themselves; sec-

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onded by Dr. Ingalls. Motion that nominations be closed was seconded and unanimously carried.

Member of Council to succeed Dr. Harry Mera (Santa Fe): Nomination of Dr. R. O. Brown (Santa Fe) was made by Dr. C. W. Gerber, seconded by Dr. Carl Mulky. Motion that nominations be closed was seconded and unanimously carried.

Delegate to A. M. A. Meeting: Motion was made by Dr. R. O. Brown that the President be allowed to use his discretion in appointing such delegate, after duly looking into the matter and ascertaining what members intended to attend the meeting. Seconded by Dr. Mulky and carried.

Members of Board of Managers, Southwestern Medicine: Motion was made by Dr. R. L. Bradley that the present members of the Board, Drs. P. G. Cornish, Jr., (Albuquerque) and A. B. Stewart (Raton), be continued in the office; seconded by Dr. Ingalls. Motion that nominations be closed was seconded and unanimously carried.

Fraternal Delegate to Texas State Medical Meeting Dr. R. L. Bradley (Roswell) was nominated by Dr. H. A. Ingalls; seconded by Dr. Troy C. Sexton. Motion that nominations be closed was seconded and unanimously carried.

Fraternal Delegate to Colorado State Medical Meeting: Dr. C. B. Elliott (Raton) was nominated by Dr. Carl Mulky; seconded by Dr. R. O. Brown. Motion that nominations be closed was seconded and unanimously carried.

Fraternal Delegate to Arizona State Medical Meeting: Dr. F. D. Vickers (Deming) was nominated by Dr. R. L. Bradley; seconded by Dr. Carl Mulky. Motion that nominations be closed was seconded and unanimously carried.

Meeting Place, 1932: Dr. R. O. Brown (Santa Fe) repeated the invitation previously made by the Santa Fe Chamber of Commerce and Santa Fe County Medical Society that the 1932 meeting be held at Santa Fe. Motion was made by Dr. H. A. Ingalls that the next meeting be held at Santa Fe, N. M., seconded by Dr. R. L. Bradley and carried.

Dr. R. O. Brown (Santa Fe) announced that the State Bureau of Public Health, of which he is a member, felt there should be a closer relationship between the medical profession of the State and the Bureau of Public Health and suggested that a committee be appointed with which the Bureau of Public Health might take up such matters as might seem to be in conflict, should any such questions arise. Motion by Dr. H. A. Ingalls (Roswell) that a committee of three be appointed by the President, from physicians in Santa Fe or proximity thereto, to take up such matters with the Bureau of Public Health as might arise and seemingly be in conflict, was seconded by Dr. R. L. Bradley and carried.

Adjournment 1:30 p. m.

Afternoon Scientific Session

Dr. Curtice Rosser, Professor of Proctology, Baylor University, College of Medicine, Dallas, Texas, opened the afternoon session with a paper on "The Diagnosis and Management of Rectal Cancer," in which he advised that "carcinoma of the large gut, the typical intestinal neoplasm, has an incidence exceeding that of gastric cancer, and 5 per cent of all cancer deaths are due to a rectal carcinoma. This lesion, untreated, has a 100 per cent mortality. Effective treatment is necessarily radical in scope and, entailing as it does in most instances an artificial anus, far reaching in its effect on the patient s after-life. The responsibility which accompanies the final decision that in any given case rectal malignancy is present is profound, since an error on either side may lead to disaster." Dr. Rosser maintained that "while the definite etiology of cancer is unknown, there is an explicit and growing feeling that if the incidence of cancer of this

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area is to be reduced, more attention must be paid to the detection and removal of benign pathology, including polyps, villous adenomata, and in the anal canal infected hemorrhoids, fistulae, fissures and areas of granulation in connection with scars. The early diagnosis of rectal and anal lesions is often tremendously complicated by the overlapping of the syndrome from the bneign condition, to which the patient is habituated, with the slight irregularities which are often the only beginning danger signals. Probably the most constant early sign is a sense of discomfort in the rectum, not relieved by defecation. Bleeding may not be severe, and bleeding may arise from other causes, but all rectal cancers bleed. Pain is usually present in anal cancer early, rarely in ampullary cancer, although referred pain to the sacrum or lower abdomen is sometimes seen. Constipation and 'morning diarrhea' are significant when they appear, but are not always present. In the intermediate stage of the development of the neoplasm, the usual symptoms are constipation or alternate constipation and diarrhea; discharge of blood, alone or mixed with mucus or pus; pain (in cancer at or near the anus) and moderate weight-loss. Determination as to operability is the first question occurring in the individual case, and since from 50 to 60 per cent of patients present themselves with inoperable lesions, this group, large in number, require special consideration as to the proper method of handling. Extension of the tumor to

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adjacent organs is the most common bar to radical removal; extension by way of the lymphatics, usually occurring later. Venous extension to the liver, fortunately, is uncommon, except in late stages. I prefer to do a colostomy immediately, without waiting for the inevitable obstruction on the inoperable case; secondary infection of the growth is thus decreased, and the radiation, a powerful and effective palliant, is made possible in sufficient dosage to shrink the neoplasm, stop hemorrhage, and hold extension in check. The interstitial implantation of radium needles through a perirectal incision, as suggested by Sir Charles Gordon Watson and others, offers a new and most effective treatment for low-lying inoperable growths."

In discussion, Dr. R. O. Brown (Santa Fe) asked if the injection of true hemorrhoids with carbolic acid has anything to do with bringing on a carcinoma.

Dr. Rosser, in closing, stated he had no reason to believe from anything he has seen in the literature that the injection of hemorrhoids with any chemical brings on malignant growth.

Dr. Nathaniel H. Brush (Santa Barbara, Cal.), in an address on "The Treatment of Delirium Tremens," emphasized certain points: (1) That delirium tremens is an acute psychosis occurring on a basis of chronic alcoholism, but it may also result from a prolonged spree. As this condition is a psychosis, treatment in a psychopathic hospital is indicated. (2) That the attack may be fulminating and the result of some severe injury or acute infection occurring in a chronic alcoholic. (3) That hydrotherapy properly utilized, probably offers us the safest and most efficient means of quieting the patient. (4) That the use of such drugs as morphia, chloral and hyoscine is contraindicated in delirium tremens. (5) That even during the acute stages of the disease, eliminative, supportive, and nursing treatment, must not be neglected."

In the discussion, Dr. M. K. Wylder (Albuquerque) referred to the abnormal sensibilities of this class of patients, telling of a man, hospitalized for treatment of the condition, who, when a cat walked across the floor, said, "Damn you! what do you mean by stamping your feet like a horse."

Dr. R. O. Brown (Santa Fe) asked if paraldehyde had proved of any benefit in cases of delirium tremens.

Dr. O. I. Nesbit (Espanola) mentioned that, when he was an intern in the hospital, as soon as this type of case came in they did a spinal puncture, and they seemed to improve much faster than those upon whom it was not done.

Dr. Brush, in closing, remarked that the individual referred to by Dr. Wylder probably might have mistaken the cat for something else than a cat. He stated that he uses paraldehyde a great deal and considers it a very safe and efficient sedative, but has never made spinal punctures in these cases.

(Continued in October Issue.)

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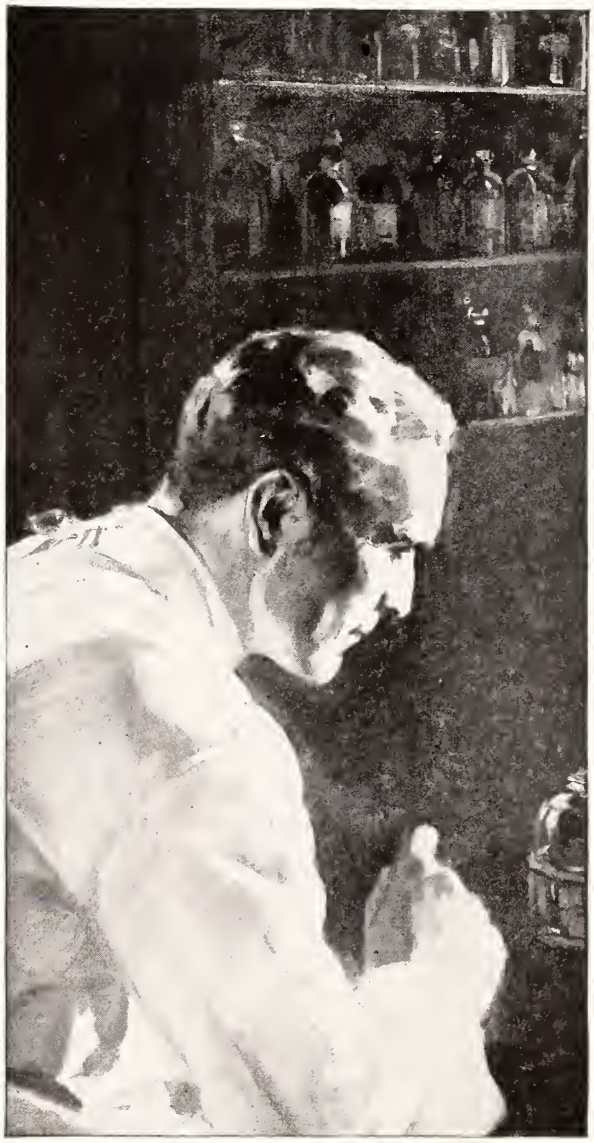

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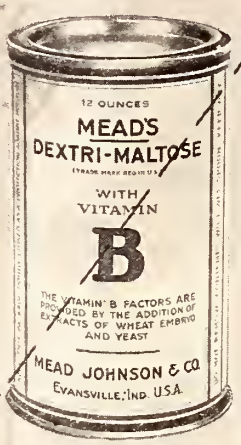

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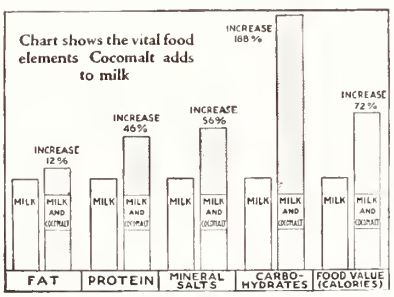

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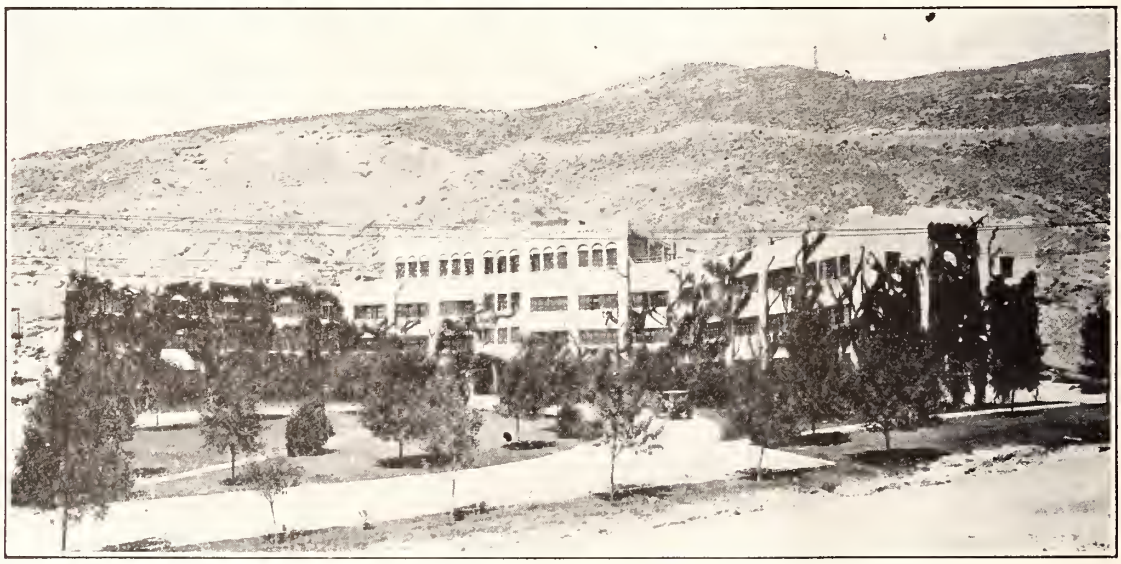

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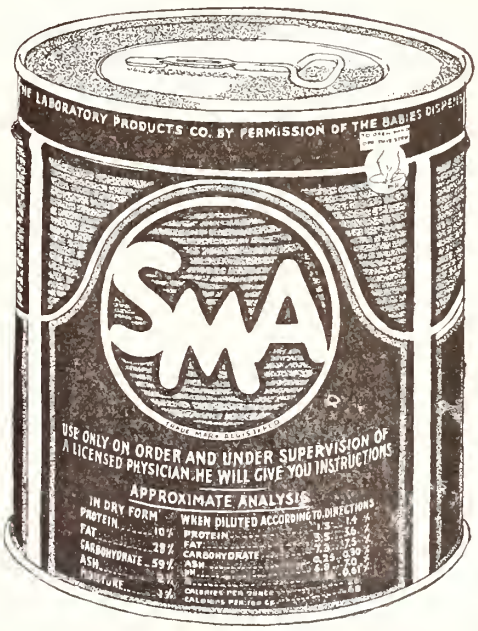

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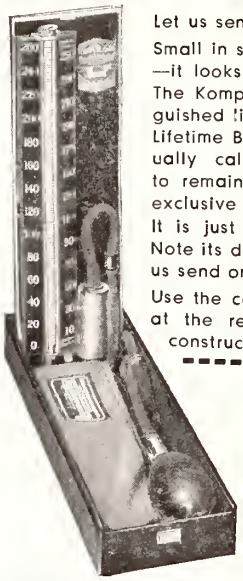

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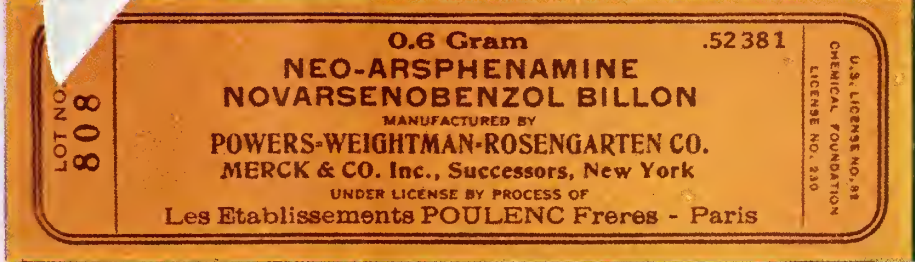

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[1] Editorial, Storage of Calcium, J.A.M.A. *96*:197 (1931). [2] Sherman, H. C. and Booher, L. E., The Calcium Content of the Body in Relation to that of the Food, Proc. Soc. Exper. Biol. & Med. *28*:91 (1930).

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EFFECTS OF LIVER DIET ON NERVOUS SYSTEM SYMPTOMS IN PERNICIOUS ANEMIA

WILLIAM C. MENNINGER, M.D.
Topeka, Kansas.

Neurological and mental symptoms occur in pernicious anemia in probably a fairly fixed percentage of cases, but according to various reports this percentage varies widely. The most recent studies would indicate, however, that there is nervous system involvement in from 70 to 80 per cent of all cases of pernicious anemia. This involvement may be so slight as to be overlooked by the physician and, in view of the fact that in most of these cases the blood picture attracts the center of attention, less frequent notation is made of the nervous system manifestations. The actual determination of nervous system involvement often presents some difficulty; often when the blood picture is advanced, there are slight neurological changes and, on the other hand, there are undoubtedly many cases in which there is an advanced spinal cord or even brain involvement when the blood picture is not entirely typical of pernicious anemia.

One of the most complete studies of a series of cases is presented by Woltman[27], who found 80.6 per cent of 150 cases to show nervous system involvement. Of those showing this involvement, 99.2 per cent showed the subacute combined sclerosis type of lesion. In an analysis of the symptoms, 92 per cent showed an impairment in vibration or joint sensibility. The fundus was pathologic in 63 per cent; there were mental symptoms in 35 per cent; the reflexes were altered in more than 90 per cent; co-ordination impaired in more than 50 per cent; and actual disturbance in gait in nearly 40 per cent.

The treatment of the nervous system has always been regarded even more discouraging than the blood picture itself. The spontaneous remission which so often occurs shows a marked improvement in the blood picture, although improvement in the central nervous system involvement is unusual. Consequently, since the advent of the liver and gastric mucosa diet, particular interest has been paid to the effect on the neurological symptoms.

There have been only a few extensive studies made, to date, with particular reference to this point, although quite a number off individual case reports and opinions have been expressed regarding it. There are quite a number of reports which would indicate that the liver diet has had no effect on the course of the nervous symptoms, and some, even, which indicate that these symptoms have been worse following the use of this diet. It is interesting to know, however, that most of the more recent reports, and particularly those of cases in which treatment has been used over a longer period of time, are much more in favor than the reports made in 1928 and 1929.

Considering first those in which the course of nervous system symptoms was unimproved: Cohen[4] reported a case in which the "more marked neurological symptoms developed after the patient had been on the Murphy-Minot diet several months and was enjoying an otherwise distinct general systemic improvement." Ordway and Gorham[15] reported that advanced cord changes persisted almost without exception, regardlless of diet. Staffieri and Giacose[22] are enthusiastic over their results on the blood picture in three cases, but none of these manifested any improvement in the neurological syndrome. Kraus[11] describes four cases in which the condition of the blood improved, but the spinal cord complication progressed and, in

some instances, it was the cause of the fatal outcome. Curschmann[6,7] is impressed with the fact that he sees no therapeutic effect of liver diet on nervous disturbances. He states that there was neither improvement of objective symptoms nor subjective disturbances and more often there was an increase in spinal symptoms. Seyderhelm[20] believes that the toxic symptom in the central nervous system remains uninfluenced by liver therapy and, after improvement of the anemia, the pernicious anemia is changed into a pernicious myelo-encephalotoxicosis. Perkins[16] reports two cases in which the blood was very much improved but there was no corresponding amelioration in the neurological finding. Two writers, Fried[9] and Middleton[13] are very skeptical regarding any improvement, although they are aware that such has been reported. In view of the pathology, they both regard it as remarkable that any functional improvement should occur.

One report, that of Taterka and Goldman[24], presents a short review of harmful effects of liver therapy as based on five cases. All of these seem to have shown somnolence, excitement, confusion soon after the institution of the treatment, but, after a period of five or six days, these symptoms cleared and good results were obtained.

As early as 1927, favorable reports were made of the improvement in the nervous phenomena occurring with liver diet. Koessler and Maurer[10] report two cases in which there was a marked improvement, and Service and Baumgartner[19] also found improvement in both the anemia and neurological symptoms after three months of liver diet. Sturgis, Isaacs and Smith[23], found that the improvement in the nervous symptoms did not parallel the generation of the blood, although slow improvement in the neurological conditions frequently followed the combining of liver extract and physiotherapy. Minot, Murphy and Stetson[14] report that, in thirty-one cases with prominent symptoms and signs of degeneration of the spinal cord, the numbness and tingling of the extremities had been much improved, coordination improved in many, and vibration sense in some cases. Bubert[3] reports a single case of a man in whom the signs of subacute combined sclerosis had been observed over a period of almost five years and whose course had been steadily downward. After a liver diet of one year, he became bright, alert, and able to walk briskly. Richardson[18] describes fourteen cases with ataxia, eight of whom showed considerable improvement and four a moderate improvement in the nervous system with the maintenance of the red blood count at four and one-half to five million. Ungley and Suzman[25] report a series of sixty-one cases, thirty treated with liver and thirty-one without. Of those treated with the liver diet, seventeen were improved, eight were not improved or were worse, seven stopped liver or reduced it beyond the recommendation, and five died, four of whom had serious complications. Of the thirty-one without liver, none improved, three were unimproved or worse, and twenty-eight died. These writers recommend 3¼ to 4 pounds of liver weekly for six or eight weeks and then 1½ to 2 pounds weekly indefinitely. They regard the extract as less efficient but use it when the patient cannot take the required amount by mouth. Blaschy[2] reports a case in which the hypotension and sensory disturbances, as well as severe ataxia, were much improved. He thinks that liver therapy probably causes an elimination of the toxins of anemia or that it exerts its influence on the spinal symptoms by improving the blood supply and lymph circulation. Smith[21] reports one case in which the neurological symptoms were marked and the patient had a psychosis, all very markedly improved, both in regard to blood and neurological symptoms. Baker, Bordley and Longcope[1] studied thirty-four cases of pernicious anemia in which there were symptoms referable to changes in central nervous system. These were treated by liver or a combination of liver and liver extract. Of twenty-three cases followed more than six months, improvement in the symptoms and findings occurred in 55 per cent; in twenty-one cases treated for less than six months, improvement was noted in 31.25 per cent. They regard some of the nervous system improvement noted as referable to a peripheral neuritis.

There are two recent reports of treatment of pernicious anemia with gastric mucosa. Conner[5] has fed gastric tissue to fifty patients and the effect on the general symptoms, as well as the blood picture, was very satisfactory, whereas the effect on the neurological symptoms was less striking, possibly because of the short duration of observation. Numbness and tingling were lessened in many cases but the incoordination responded less definitely to treatment. He states, however, that not enough time has elapsed properly to evaluate the effect on the neurological condition. Wilkinson[26] presents very glowing reports of treatment of 108 cases with the result more satisfactory and more prompt with liver and states that 92 per cent are perfectly well; several cases

with early postero-lateral involvement, spinal cord showed remarkable impprovement and paresthesia of the hands and feet have been almost completely cured in almost every case.

The problem has been attacked from a pathological standpoint by Davidson[5]. "The changes in the myelin sheaths and axis cylinders, in the cases of subacute combined degeneration treated by liver, were no different from those found in the untreated cases. The glia, however, in the treated cases showed a tendency toward proliferation and condensation, and resembled in all aspects progressive glia changes, such as seen in multiple sclerosis, tabes, and so forth. This process was not observed before in untreated cases of subacute combined degeneration, where the glia changes are regressive."

"It may be assumed that the liver therapy either caused a reduction in the hypothetical toxin or its attenuation, and therefore allowed the glia to proliferate and replace the destroyed tissue. The only effect that liver therapy may have on the myelin sheaths and axis cylinders is to cause a cessation of further destruction of these structures. In the light of our present day knowledge of neurohistopathology, regeneration of destroyed axis cylinders is inconceivable. This serves as an explanation as to why the changes in the myelin sheaths and axis cylinders in the seven treated cases were not different from those found in the untreated cases. This finding, however, should not discourage us in the early administration of liver therapy in cases of pernicious anemia, with or without neurologic complications."

CASE REPORTS

Case 1. Woman, aged 52; first seen November 7, 1928.

History: Family: Apparently not relevant.

Developmental: Had diseases of childhood. Three children, first with forceps delivery. Passed through menopause at age 45. At age 48 went through Mayo Clinic and put on anti-constipation diet.

Present Illness: First symptoms appeared summer of 1928, fatigability, indigestion with belching and epigastric distress. In November, for a period of a week, had to be catheterized and at about this time noticed numbness in hands and feet and complained of their feeling "crusty," developed difficulty in using feet and somewhat in arms and, for a period of a week before entering the hospital, was confined to her bed.

Examination: Physical: (Only pathological features mentioned.) Pasty, pale skin, glossy red tongue, quite smooth; heart sounds faint, no enlargement and no murmurs, pulse regular, extremities (see under neurological examination). Neurological: Cranial nerves normal except pupils, sluggish and reaction to light equal and regular. There is a marked weakness of both legs, with marked diminution to temperature and touch, with almost complete anesthesia of toes and right foot. There is less marked sensory change in fingers, and patient complains of tingling. Vibratory sense under 3 seconds in all extremities; extreme weakness, such that patient cannot stand on feet. Positive Babinski on right, deep reflexes not obtained.

Laboratory	H.B.	RBC	
Nov. 7, 1928	70%	3,680,000,	marked anisocytosis and poikilocytosis.
Sept. 3, 1929	88%	4,420,000	

Gastric Analysis, November 9, 1928, no free hydrochloric acid. Combined acidity, 9 degrees.

Progress: This patient was put on a liver diet, receiving 100 grams by mouth daily, during a period of 6 weeks in the hospital. Following this she was given liver extract, three times a day, on which she remained for nine months. During this time she very greatly improved, although she was not able to continue liver by mouth. In September, 1929, when again examined, she was able to walk without even the help of a cane, and complained of very little numbness in her feet and legs. Vibratory sense increased to from 7 to 9 seconds over all the extremities, pain sense somewhat diminished over lower and tactile sense approximately normal, slight ataxia in lower extremity, knee jerks both obtained but hypoactive. Ankle jerks not obtained. Although this patient has not been checked up since, we have had late reports that she continues to do well and has steadily gained, although she only occasionally takes liver.

Case 2. Man aged 68. First seen July 28, 1928.

History: Family: One brother died of paralysis. No other significant information. Medical History: User of alcohol for years. Present Illness: For a period of six months has been noticeably weaker, developed chill, July 20, although had been complaining of shortness of breath, loss of appetite and extreme weakness for some time. On July 24, he became irrational, paranoid toward family, talked of being poisoned, and has had to be restrained, required morphine to keep him quiet.

Examination: Physical: A well-developed and well-nourished man; dry, warm skin; pale; chronic blepharitis and conjunctivitis; unsanitary, poorly tended teeth: blood pressure, 165/80. Neurological: Right pupil larger than left, otherwise no cranial nerve defects; patient unable to stand on feet and is noticeably weak in arms; sensation of touch practically absent in fingers and below knees; vibratory sense less than 4 seconds at wrists and absent below waistline, a moderate ataxia; deep reflexes hypoactive but equal.

Laboratory: Hemoglobin, 36 per cent; red blood count, 3,240,000; spinal fluid normal; urine constantly showed 1 or 2 plus albumin and considerable sugar at his admission.

Progress: This patient was put on liver diet, 50 grams by mouth during a period of six weeks, and was instructed to continue this at home. We learned from the family, who were average farmer folk, that he did not continue on his liver diet except irregularly, after the first month. Despite this fact, he was able to walk when he left the hospital and had continued to gain slowly but definitely when examined in February, 1930. He continued to have some gastric distress but the sensation in his extremities, to both touch and vibration, had reappeared and mentally he was entirely cleared up.

Case 3. Woman, age 43; first seen, December 31, 1929.

History: Family: Mother deaf, rheumatic; rest of family history normal. Medical History: Negative. Present Illness: Dates back three months. First noticed numbness and tingling in finger tips,

spread following month to hands; at same time began to notice this sensation in feet, which has progressively spread to her waist; for a month has had difficulty in walking and for a week it has been severe, with staggering, shaking gait. She has had sore tongue for a period of a year or more.

Examination: Physical: 56 pounds over-weight; obstructed nasal chamber; pale, smooth tongue; slight congestion in lungs; deep hypogastric tenderness; slight edema in ankles. Blood pressure, 105/65. Neurological: Paleness of optic discs, moderately contracted pupils, moderate action to light for one-third normal distance; vibratory sense 5 to 6 seconds at wrist and absent at ankles and knees; a marked swaying in Romberg position and a distinct, although not extreme, impairment in co-ordination; knee and ankle jerks moderately over-active

Laboratory:	HB	RBC
Dec. 31, 1929	37%	1,770,000
Jan. 12, 1930	46%	1,780,000
Jan. 15, 1930	55%	2,720,000
Feb. 5, 1930	74%	3,670,000
Mch. 4, 1930	50%	3,420,000

Progress: In the hospital, this patient was put on 50 grams liver by mouth two times a day and after dismissal from hospital, was given liver extract six times a day. Her general picture improved, her appetite returned, and the vibratory sense reappeared in her ankles, lasting only for an instant, returned to eight seconds in her wrists; numbness continued to be much the same. She changed to ventriculin after three months of liver and combined this with hydrochloric acid at meals. She did not make any further improvement under ventriculin. The explanation of the drop in hemoglobin is not clear in view of the fact that she tells us she stayed very carefully on the liver diet and liver extract.

Case 4. Woman, aged 60; first seen in August, 1929.

History: Family: Negative. Medical History: Negative. Present Illness: Symptoms first noticed two years before first visit, with numbness and fatigability, sore tongue, began to lose weight, and complained much of belching and indigestion, emotionally upset and hypersensitive.

Examination: Physical: Sallow complexion; emaciated, dry skin with distinct pale yellow tint; tongue inflamed and sore. Blood pressure, 160/85. Neurological: Slightly unsteady gait; slouched and stooped posture; skilled movements difficult; touch, pain and temperature sense normal; vibratory sense 6 to 10 seconds in upper extremities and 3 to 5 on lower; arm reflexes normal; knee and ankle jerks not obtained.

Laboratory:	HB	RBC
Aug. 6, 1929	71%	3,840,000
Oct. 15, 1929	71%	4,160,000
May 25, 1931	86%	4,296,000

Progress: This patient was put on liver diet and instructed to take 50 grams twice a day and liver extract. She was unable to do this because of distress to stomach and, after a rather inadequate attempt, she was placed on ventriculin and in addition was given arsphenamine in very small dosage. She very slowly improved symptomatically, the numbness became a good deal less and her gait disturbance much less noticeable to herself. The digestive disorder continued to bother her, but was helped a little by hydrochloric acid. The vibratory sense became a little asymmetrical, her right wrist 8 to 10 seconds, and left 10 to 14; her right ankle 1 second or less and her left 1 to 3 seconds. This woman continues under observation but is not much improved since the institution of the liver diet.

Case 5. Man, age 38; first seen March, 1931. This case although under observation only a short time, is introduced to report the occurrence of an acute paranoid reaction developing even after the patient had been on liver diet.

History: Family: Mother died at age 38, of tuberculosis.

Medical History: Had influenza in 1919 and 1930. Present Illness: About two years ago began feeling dragged out and since that time he has lived on a daily diet of liver and has improved physically. Teaching in a college and working very hard. In March, became very suspicious, wanted his wife always with him, said the police were looking for him, and believed food was poisoned.

Examination: Physical: Marked icteric hue; chronic post-nasal and pharyngeal catarrh; tongue unduly clean; some rales in chest; blood pressure, 100/70. Neurological: Hyperactive biceps, triceps, supinator; absent abdominal and cremasteric; reduced vibratory; ankles 5 seconds and wrists and elbows 8 seconds; hyperactive plantar.

Laboratory:	HB	RBC
Mch. 25, 1931	56%	2,280,000
Apr. 28, 1931	60%	2,800,000
May 12, 1931	59%	2,232,000
May 23, 1931	58%	1,968,000
June 8, 1931	59%	2,180,000

Progress: When the patient first came to the hospital, he was so suspicious of every one that he refused food for several days and took no liver for about two weeks. Then, very gradually and somewhat irregularly, he returned to his liver diet. Simultaneously with his eating, he began to clear mentally. We do not feel, however, that the improvement mentally was associated with his return to the liver diet. There was slight, if any, evidence of improvement of his physical condition, although he has unmistakable spinal cord involvement. The case was interpreted as being a schizophrenic episode occurring in an individual who also had pernicious anemia, and his schizophrenia entirely cleared.

SUMMARY

Four of these cases show definite improvement in the neurological symptoms associated with the improvement of the blood picture in pernicious anemia. In light of the pathology, the improvement must be regarded as merely a lessened toxic effect on the nervous system. It seems desirable to institute the liver diet in such cases of combined sclerosis, even when the blood picture is not typical of pernicious anemia, as well as the frank cases of this disease.

BIBLIOGRAPHY

1. Baker, B. M., Jr.; Bordley, J. III; Longcope, W. T.: Effect of Liver and Liver Extract on Symptoms and Signs Referable to Nervous System in Pernicious Anemia. Minn. Med. 13: 815-817, Nov. 1930.

2. Blaschy, R.; Efficacy of Liver Therapy, in Spinal Symptoms of Pernicious Anemia. Munch. Med. Wchnschr. 77; 183-184, Jan. 31, 1930. Abst. J.A.M.A., 94; 1274, Apr. 19, 1930.

3. Bubert, H. M.: Subacute Combined Sclerosis. Report of a case, associated with Pernicious Anemia, improved by Murphy-Minot Diet. J.A.M.A., 90: 903-906, Mar. 24 1928.

4. Cohen, A. E.: Subacute Sclerosis Progressive during Remission of Pernicious Anemia, J.A.M.A. 90: 1787, June 2, 1928.

5. Conner, H. M.: The Feeding of Gastric Tissue in the Treatment of Pernicious Anemia: Report of Sixty Cases. Proc. Staff Meet., Mayo Clinic, 5; 205, July 23, 1930.

6. Curschmann, H.: Nervous Disturbances in Pernicious Anemia and Liver Therapy, Med. Klin. 25: 1767, Nov. 15, 1929, Abst. J.A.M.A. 94; 301, Jan. 25, 1930.

7. Curschmann, H.: The Nervous Disorders of Biermers Anemia, and Liver Therapy. Munch Med. Wchnschr. 76: 1863, 1929. Abst. Organotherapy.

8. Davison, Chas.: Spinal Cord Changes in Subacute Combined Degeneration Following Liver Therapy. A histopathologic Study. J. Nev. & Ment. Dis. 73: 319-319, March, 1931.

9. Fried, B. M.: Subacute Combined Degeneration of the Spinal Cord in Pernicious Anemia Treatment with Liver Diet. J.A.M.A. 92: 1260-1263, Apr. 13, 1929.

10. Koessler, K. K.; and Mauer, S.: Treatment of Pernicious Anemia with High Caloric Diet, Rich in Vitamines. J.A.M.A. 89, 768-744, Sept. 3, 1927.

11. Krause, F.: Failure of Liver Therapy in Nervous Manifestations of Pernicious Anemia. Klin. Wchnschr. 8:2177, Nov. 19, 1929. Abst. J.A.M.A. 94: 301, Jan. 25, 1930.

12. Mason, E. H.: Pernicious Anemia: Report of a case treated with liver diet for approximatley four years. J.A.M.A. 90: 1527-1529, May 12, 1928.

13. Middleton, W. S.: Erythropoetic Response of Various Anemias to Liver Therapy, J.A.M.A. 91: 857-863, Sept. 22, 1928.

14. Minot, G. R.; Murphy, W. P.; and Stetson, R. P.; Response of Reticulocytes to Liver Therapy; Particularly to Pernicious Anemia. Am. J. Med. Sc. 175:581-599 May, 1928.

15. Ordway, T.; and Gorman, L. W.: Treatment of Pernicious Anemia with Liver and Liver Extract. J.A.M.A. 91: 925-928 Sept. 29, 1928.

16. Perkins, J. N.: Combined Sclerosis Associated with Pernicious Anemia. U. S. Vet. Bur. Med. Bull. 6: 367-370, May, 1930.

17. Pepper, O. H. P.: Medical Clinic, J. Iowa M. Soc. 20: 495-502, Nov., 1930.

18. Richardson, W.: Pernicious Anemia: Results of Treatment with Liver or its Derivatives in 67 Cases. New England J. Med. 200: 504-545, March 14, 1929.

19. Service, S. F.; and Baumgartner, E. A.: Subacute Combined Degeneration of Spinal Corod in Pernicious Anemia. Clifton M. Bull. 13: 29-35, March, 1927.

20. Sevderhelm, R: The Possibilities and Limitations of Liver Therapy. Deutsche Med. Wchnschr. 55: 1704-170, Oct. 11, 1929.

21. Smith, L. H.: Mental and Neurologic Changes in Pernicious Anemia. Report of case. Arch. Neurol. & Psychiat. 22: 551-557, Sept., 1929.

22. Staffieri, D.; and Giacose, R. A.: Results of Liver Diet in Pernicious Anemia and in Complicating Neurologic Syndrome. Semana Med. 2: 906-913, Sept. 26, 1929. Abst. in J.A.M.A. 94: 67, Jan. 4, 1930.

23. Sturgis, C. C.; Isaacs, R.; and Smith, M.: The Treatment of Pernicious Anemia with a Liver Extract. Ann. Int. Med. 1: 983-995, June, 1928.

24. Tatarka, H.; and Goldmann, C. H.: Disturbed Mental Condition in Liver Therapy of Pernicious Anemia. Med. Klin. 25: 158-1587, Oct. 11, 1929, J. A. M. A. 93: 2010 Dec. 21, 1929.

25. Ungley, C. C.; and Suzman, M. M.: Subacute Combined Degeneration of the Cord: Symptomatology and Effects of Liver Therapy. Brain, 52; 271-294. Sept. 1929

26. Wilkinson, J. F.: Treatment of Pernicious Anemia with Hog's Stomach, 108 cases. Brit. Med. J. 1: 85-91. Jan. 17. 1931.

27. Weltmann, H. W.: The Nervous Symptoms in Pernicious Anemia, 150 cases. Am. J. Med. Sc., 157-400, March, 1919.

MEDICAL JURISPRUDENCE

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(Delivered before the New Mexico Medical Society, at its Forty-Ninth Annual Meeting, Albuquerque, N. M., May 20-22, 1931.)

This title has been chosen for my address rather than the one announced in the official program of this convention ("Physicians' Liability"), because it is more comprehensive, and will justify a wider discussion of some of those interesting, and, sometimes, alarming, questions which arise when the medical and legal professions come into contact and sometimes clash, with each other.

Medicolegal science first began to receive recognition and definite expression in about the middle of the Sixteenth Century, when lawyers and doctors simultaneously awakened to the importance of the subject. Since then it has been steadily developed until now it has come to have some of the earmarks of an almost exact science.

The authors of a well-known textbook (Witthaus & Becker), inform us that: "At common law a physician could not sue and recover for his services, while he might for the medicines he furnished. The theory of the law followed the etiquette of his profession and forbade him making a contract for pay for his services, and obliged him to receive what a patient chose to give him, and which payment was called his honorarium." The same rule was recognized until comparatively recent times in the legal profession, and to this day the barrister's gown in England contains a flap or bag hanging over the back of his left shoulder, now no longer used, but in earlier times used as a convenient receptacle for whatever fee the client was pleased to place therein. Now a lawyer, both in England and in the United States, is privileged, and not infrequently prefers to look his client in the face and transfix him, if necessary, to the point of making a speedy and satisfactory settlement. There is probably a consensus of opinion in the medical and legal professions that the day of the honorarium has fortunately passed, and that now the learned gentlemen of these professions are required to take no chances on what their patients or clients may do, but to appraise for themselves the value of their own servicees.

Of course, I am not for a moment forgetful (no one could be) of the fact that from time almost immemorial the two professions have been the butt of people's taunts, jibes, witticisms, criticisms, and condemnation, such as have been lavished on no other callings. These things have come from the

mouths and pens of both the wise and the unwise, the informed and the uninformed, the just and the unjust.

Lord Coke, the famous English jurist, over three hundred years ago declared that "Law is the essence of reason. That which is not reason, is not law," and this has come to be one of the oft-quoted maxims of the profession. But Tennyson referred to the law in this language: "The lawless science of our law,—that codeless myriad of precedent, that wilderness of single instances, through which a few, by wit or fortune led, may beat a pathway out to wealth and fame." And Charles Macklin, in a still more critical vein, in his comedy **Love a'la Mode**, said: "The law is a sort of hocus-pocus science, that smiles in yer face while it picks yer pocket; and the glorious uncertainty of it is of mair use to the professors than the justice of it."

Plutarch narrates the following incident: "A physician, after he had felt the pulse of Pausanias, and considered his condition, said 'He ails nothing.' He replied, 'It is because, sir, I used none of your physic.' And when the physician said, 'Sir, you are an old man,' Pausanias replied, 'That happens because you never were my doctor."

You will recall that when Macbeth called in a doctor to prescribe for Lady Macbeth, he called on the doctor for a report, after the examination of the patient had been made, and the following colloquy took place between them:

Doctor: She is not so sick, my lord,
As she is troubled with thick-coming fancies
That keep her from her rest.

Macbeth: Cure her of that!
Cans't thou not minister to a mind diseased,
Pluck from the memory a rooted sorrow, raze out the written troubles of the brain,
And with some sweet oblivious antidote
Cleanse the stuff'd bosom of that perilous stuff which weighs upon the heart?

Doctor: Therein the patient must minister to himself.

Macbeth: Throw physic to the dogs! Ill none of it!

The late Bishop Doane in his "Lines on Homeopathy" expressed himself, as follows:

"Stir the mixture well
Lest it prove inferior,
Then put half a drop
Into Lake Superior.
Every other day
Take a drop in water,
You'll be better soon,
Or at least you oughter."

And yet, here we both are, doctors and lawyers, in this year of our Lord, 1931, both serving humanity according to our light, and being compensated, more or less, according to our just deserts.

The great number of suits that are being instituted in the courts of this country against medical practitioners, to recover damages for alleged malpractice, suggests that the medical profession should not only be more on its guard to avoid such contingencies, but should be better advised as to the defenses that are available under the law when such actions are brought. This kind of litigation is no longer a novelty, as it was generally considered a few years ago. On the contrary, it is one of the most popular fields of endeavor on the part of a certain class of lawyers—generally shyster lawyers and quack doctors. Sometimes honorable and able lawyers and doctors of high standing. Some of these suits are most meritorious and the plaintiff ought to prevail, but for the most part they are entirely without merit and result in neither the claimant, nor his contingent-fee attorney, getting anything but a judgment against them for the costs. But during the litigation the doctor suffers a serious inroad upon his time and practice, and he is worried lest by any chance the case should go against him, and both his pocketbook and his reputation become involved. If he is fortunate enough to carry protective insurance his pocketbook may be saved, but not always his reputation. Some of you gentlemen sitting here have had this very trying experience, and none of you can lean back with much self complacency, or with any assurance that you will not be sued by some aggrieved patient to whom, as you think, you have rendered your best service, and upon whom you have conferred some benefit.

I am now going to state a few of the outstanding principles which apply to the reciprocal obligations of physician and patient, and the tests that must be applied to determine liability in this class of litigation.

THE CONTRACT OF EMPLOYMENT

The employment of a physician establishes a contractual relationship between him and his patient, even though the services to be rendered are in a sense voluntary; that is to say, the physician is not bound, in a legal sense, to respond to a call, or to render services when he does not want to. He is at liberty to refuse employment. His moral

duty may, of course, require him to respond to a call when he would much rather not do so. But when he is employed, the services must be continued until he gives notice of his intention to discontinue them, and a reasonable time must be allowed the patient to obtain the services of another physician, assuming, of course, that the patient has not fully recovered. On the other hand, the patient may discharge the physician at any moment, without incurring any liability in damages, unless a special contract has been entered into that the services shall be rendered for a fixed period, or until a certain result is reached, and for a certain compensation.

This contractual relationship arises either from an express agreement, that is, definite as to duration, services, compensation, and, sometimes, as to result: or it may be upon an implied agreement, that is to say, an unexpressed agreement, which the law establishes for the parties, as soon as the patient calls on, or calls for, a physician to render professional services, with none of the terms of employment being discussed. This is, of course, the "contract" the exists in the large majority of cases.

A reasonable compensation is the physician's reward, and he is entitled to that, regardless of results, unless it is one of those foolish and dangerous contracts which are sometimes entered into, making the payment contingent upon a successful result, or, as some are willing to express it upon a "cure."

DUTIES OF PATIENT

The patient impliedly contracts on his part, first, that he will give the physician complete information concerning the facts and circumstances of the case, and full opportunity to treat him properly; second, to obey the physician's instructions and follow his directions; and third, to pay him the reasonable worth and value of his services.

If a patient fails to submit to such treatment as a physician prescribes, providing the treatment is such as a physician of ordinary skill would adopt or sanction, his negligence is his own wrong or mistake, for which (if the results are bad) he has no right to hold his physician responsible.

DUTIES OF PHYSICIANS

In the absence of a special contract otherwise providing, a physician contracts with the patient that he possesses that reasonable degree of learning and skill ordinarily possessed by others of his profession practising in similar localities, and that he will use reasonable and ordinary care and diligence in the exercise of his skill and the application of his knowledge to accomplish the purpose for which he is employed, and that he will use his best judgment in the exercise of his skill in deciding upon the nature of the injury and the best mode of treatment.

RULES OF LIABILITY

(1) If, in a given case, it is established that the physician does not possess the presumed qualifications, or that he does possess them and fails to exercise reasonable care and on his best judgment, he is liable in damages to the complaining party for the bad results consequent upon such failure. Otherwise, he is not.

(2) A physician does not (in the absence of a special contract otherwise providing) undertake to warrant a cure, and is not responsible for want of success, unless that want results from failure to exercise ordinary care, or from his want of ordinary skill. In the case of **Haire v. Reese** (7 Phila. 140), Judge Thayer said: "No presumption of the absence of proper skill and attention arises from the mere fact that the patient does not recover. God forbid that the law should apply any rule so rigorous and unjust as that to the relations and responsibilities arising out of this noble and humane profession."

(3) If a physician possesses ordinary skill and exercises ordinary care and his best judgment in applying it, he is not responsible for a mistake of judgment. "**Humanum est errare**".

The late Chief Justice Taft, when a judge of the United States Circuit Court of Appeals, in the case of **Ewing v. Good** (78 Fed. 442,) said: "A physician is not a warrantor of cures. If the maxim **res ipso loquitur** were applicable, and failure to cure were held to be evidence, however slight, of negligence on the part of the physician or surgeon, causing the bad result, few would be courageous enough to practise the healing art, for they would have to assume a financial liability for nearly all the ills that flesh is heir to."

EXPERT EVIDENCE

(1) The skillfulness of a physician in diagnosis and treatment should be tested by the recognized rules of his own school or branch of the profession, and must be determined by resort only to the testimony and opinion of experts. Lay evidence is not competent to prove negligence on the part of the physician in the diagnosis or treatment of a patient.

(2) Expert evidence in such cases is usually obtained through the medium of hypothetical questions propounded to witnesses who have no actual knowledge of the facts but who give their opinion evidence upon the

assumed facts as stated in the questions. These questions may cover a wide scope, but in no event may they extend beyond the reasonable range of evidence given or expected to be given by the party propounding them.

In this connection, it might be well to state that, where the hypothetical question is propounded and the witness is required to answer "yes" or "no," with no opportunity to give a qualified or conditional answer, he has the right to refuse to say "yes" or "no," if in so doing his evidence is misleading, and does not express his true opinion. He may object that the question is incomplete, or is propounded in such a form that it does not permit of simply a "yes" or "no" answer. He may ask for further information as to the facts supposed to exist in the given case.

(3) Where there is conflict in the evidence of experts as to whether the treatment given, or the operation performed, was given or done in a proper manner and in accordance with generally recognized medical or surgical practice, that conflict of opinion makes it a question for the jury to determine. If, however, there is no conflict in the opinion evidence, and it is to the effect that the treatment given, or the operation performed, was proper in every way, the court should take the case from the jury and non-suit the plaintiff.

PHYSICAL EXAMINATION OF PLAINTIFF

(1) A patient suing a physician or surgeon for alleged mal practice, resulting in injury or disability to the plaintiff, may be required, upon timely application to the court, to submit to a physical examination in advance of the trial, by doctors of the defendant's selection, and if such submission is refused, th eplaintiff will not be permitted to proceed with the case.

(2) Scars, or personal deformities, which are made the basis of any suit, predicated upon a surgeon's alleged negligent treatment, may be exposed to the jury on the plaintiff's own motion, or upon the request of the defendant. Oftentimes the disfigurement or injury is much less serious than represented in the pleadings.

You have perhaps heard the story of the plaintiff suing a railroad company for personal injuries, who limped badly as he approached the witness chair and took his seat with apparent pain and difficulty. On cross-examination he was asked, sympathetically, if he walked or suffered that way before the accident. This brought forth the prompt and emphatic response, "No, sir, I did not!" He was then requested kindly to descend from the witness chair, walk around the counsel's table and back to the chair, in the manner he walked before the accident. Anxious to prove what a fine upright and alert walker he was then, he promptly complied with the request—and lost his case.

You may also have heard of the poor man who was impatiently awaiting the trial of his case for personal injuries received in an automobile accident. A friend who had not seen him for some months met him hopping along the street on crutches. "What!" the friend exclaimed, "not able to get along yet without crutches Tom?" And the cripple replied: "Well, you see, Bill, it's just this way: my doctor says I can, but my lawyer says I can't!"

PLAINTIFF'S CONTRIBUTORY NEGLIGENCE

If the patient's impaired health or alleged injuries, consequent upon the alleged negligent treatment by a physician or surgeon, are wholly or partially the result of the patient's own negligence in refusing to submit to, or follow, the treatment prescribed by the physician or surgeon, or to exercise due care in preventing further injury in his then weakened or convalescent condition, he is not entitled in law to recover any damages.

MEDICAL TEXTBOOKS AS EVIDENCE

(1) Medical witnesses are not required to submit to a cross-examination on the contents of medical textbooks unless they first acknowledge that they are familiar with the particular treatise upon which the examination is to be based.

(2) Medical textbooks are not themselves admissible in evidence as independent proofs of opinion as to the proper treatment that should be rendered in a given case, although lawyers often assume the rule to be otherwist.

Upon a moment's reflection, it will be readily seen how unjust it would be to admit the opinions of textbook writers in evidence, when there is no opportunity to challenge or dispute the opinions of the authors by cross-examination, and when, sometimes, their opinions are not supported by the prevailing current opinion of active practitioners upon the particular questions involved.

CONFIDENTIAL KNOWLEDGE OF DOCTOR

(1) The confidential relationship existing between a patient and his doctor is recognized in most states in what is known as the "Privileged Communications" statute, which provides that a physician or surgeon shall not, without the consent of his patient, be examined as a witness as to any information acquired in attending the patient, which was necessary to enable him to prescribe or act

for the patient. Even without such a statute a doctor's lips are sealed as to confidences of his patient, just as a lawyer's are as to the business of his client. That rule of professional ethics is universal and, needless to say, should always be strictly adhered to.

(2) The courts have held, however, and I think very properly so, that the protection to which the patient is entitled under this statute, is waived by his bringing a suit, predicated upon the alleged malpractice of his attending physician. Otherwise, it might be impossible, in a given case, to establish the truth, as the patient could, under such circumstances, say what he pleased about his treatment and the doctor's lips would be sealed.

MISTAKES AND ACCIDENTS

I call to your attention a book recently published, which you will find of great interest. It is entitled "Mistakes and Accidents of Surgery," and is a technical medical treatise by Dr. Harold Burrows, assistant-surgeon at the Royal Portsmouth Hospital, England, and a well-known ex-professor of surgery at the Royal College of Surgeons, London. Dr. Burrows states that the book is written "from a sorrowful contemplation of the many surgical errors which I have myself committed." His amazing frankness suggests the great interest with which the book should be read by surgeons and others. Dr. Burrows refers to one case involving the apparently obvious operation of amputating a limb, where the wrong member was cut off. He says: "Story has it that a certain celebrated surgeon, having in error removed the wrong leg in such a case, was then most anxious, for the patient's sake, to take off the other limb, which was the seat of a severe compound fracture. This the patient stoutly refused to allow. His refusal was justified, for he recovered with a useful leg."

As being somewhat indicative of the nature of the suits that are frequently being brought against members of your profession for alleged malpractice, I may say that I have in my own practice defended cases involving the following conditions, viz.:

1. A shortened leg, resulting from a refracture and a re-setting of a badly united bone.

2. Volkman's paralysis or contracture of a boy's hand, claimed to have been caused by too tight bandaging of a broken arm.

3. Alleged blood poisoning from use of bad serum.

4. Miscarriage caused by alleged wrong prescription.

5. Burns caused by electrical treatment for eczema.

6.Burns from hot-water bottles following operations.

7. Drainage tube entering thoracic cavity and not removed for six months.

8. Ill health following operation for a prolapsed kidney.

9. Death of baby in childbirth (which case took four weeks to try and in which nineteen doctors testified.)

10. Alleged re-fractured neck of femur from breaking of overhead pulley rope suspending a twenty-pound bag of shot.

11. Death from alleged illegal operation (which in fact was not performed).

12. Severing of ureter in operation for removal of cancer of cervix of uterus.

13. Hernia and other disabilities following operation for lacerated perineum (cystocele and rectocele.)

14. Setting of a boy's fractured arm without an open operation, necessitating a second operation.

15. Premature removal of bandages following a reduction of a dislocated shoulder in an elderly woman, causing permanent redislocation.

16. Alleged unnecessary amputation of leg following infection from a gun-shot wound.

17. Alleged fracture of sacrum by an osteopath in reducing a sacro-iliac dislocation.

18. Amputation of leg following infection alleged to have been caused by use of the Steinmann pin.

19. Sponge alleged to have been left in abdomen following an appendectomy, and being removed **per ani** several months later.

20. Burning and permanently disfiguring a woman's face by use of radium to remove birthmark.

21. Breaking of bones and crippling patient in an effort to remedy flat feet.

22. Use of 50 per cent silver nitrate solution in error for a 2 per cent solution in case of acute conjunctivitis, destroying eyesight.

These suits have involved claims for damages in a total of many hundreds of thousands of dollars.

Cases against dentists with which I am familiar are quite as diversified.

It may be said, however, that the large majority of all such cases are without merit, and the plaintiff, generally speaking, prevails only when by proper evidence the charge of negligence, upon which every such suit is necessarily based, is established to the satisfaction of the court and he permits the issues to be determined by the jury.

Finally, may I venture to say that, if doctors were a little less critical of each oth-

er's work, a little less given to currying favor with their patients by off-hand condemnation of the prescriptions or the work of previous attendants, often without knowing the facts and circumstances under which such prescriptions were given or the work done, fewer of their professional brethren would be the subjects of damage suits, and fewer of them would be called to the stand to explain what they meant by such off-hand and ill-advised criticism, which is often the first inspiring cause for the lawsuit which follows. Lawyers are, generally speaking, more kindly and charitably disposed toward each other. If doctors could follow Shakespeare's advice and "strive mightily as adversaries do in law, but eat and drink as friends," it would be a good thing for them and for their honorable profession.

Let us, therefore, in the continued exercise of our professions—which are primarily professions of service and incidentally, only, of compensation (for not one in a thousand, the country over, has in the medical or legal professions accumulated substantial wealth), keep our hearts, minds and consciences close to the pulsating heart of humanity, and when "our little lives are ended with a sleep," it may be said of us, as it was by Ruskin in the inscription which he placed on his father's tombstone at Croydon, near London: "His memory to those who kept it is ever dear and helpful."

CONSERVATIVE TREATMENT OF CANCER OF THE MOUTH AND LOWER LIP

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(Read before the Sixteenth Annual Session of The Medical and Surgical Association of the Southwest, at El Paso, Nov. 6-8, 1931).

There is an opinion current in this country that cancer is on the increase. Whether this is actually true or not, I do not know; but I do know that those of us who devote a considerable part of our time to a consideration and treatment of the disease are seeing an ever-increasing number of cases each year. A certain percentage of this increase might logically be attributed to the fact that the population is rapidly increasing and to the further fact that people are living longer now than they did a generation or two ago, and, since cancer is a disease of advancing years, more people are living to reach the cancer age. We might further observe that both the public and the members of the medical profession are becoming better informed on the subject of early diagnosis and treatment of cancer and more cases are being seen and successfully treated now than at any time in the history of medicine.

Yet, with our greatly increased knowledge and our improved methods of treatment and a better understanding among all parties concerned regarding the subject of cancer, we are still seeing people with well-developed malignant lesions on their lips and on the inside of their mouths. Occasionally the lesions are so far advanced that a cure by any method is either doubtful or impossible. Old erroneous ideas handed down from generation to generation are hard to outlive. Many otherwise intelligent people seem to have inherited the idea that cancer cannot be cured and that treatment only makes the condition worse.

A very large percentage of the human family, physicians included, have an inborn horror of unsightly scars and, because of the uncertain consequences connected with the older methods of treatment, timid individuals are sometimes frightened into a state of procrastination in which they remain until too late to hope for more than temporary relief. Until we can convince the cancer victim that we have a method of treatment that satisfactorily overcomes these objections, we shall continue to see a large unmber of neglected cases.

Radiotherapy (x-ray and radium) in the treatment of cancer is no longer new; it is no longer an experiment and, when properly used in suitable cases, is free from the objections complained of in the older methods.

For clinical convenience we are in the habit of dividing the cases of cancer of the lower lip into three stages which, of course, have no well-defined boundary lines, and, as might be expected, occasionally overlap. In the first stage are grouped all cases having lesions confined to the superficial tissues, that is, to the skin proper. The early cases of cancer of the lip belong to this group. The second stage cases are more extensive, the induration and ulceration are more pronounced and the subcutaneous structures are involved, with a possible beginning extension to the nearby lymph nodes. A considerable number of the cases that come for examination and treatment belong to the second stage. In the third stage are included all cases in which the lesions are extensive and the nearby and distant lymph nodes show unmistakable evidence of metastases. About ten per cent of all cases observed belong to this stage.

Stages	No. of cases	Primary lesion healed	Secondary lesions	
			Inflamed Healed	Malignant Died
First	86	86	None	None
Second	22	18	6	4
Third	11	7	None	11
Total	119	111	6	15

TABLE No. 1. The 119 cases of cancer of the lower lip are here grouped into three stages with end results. By omitting the 11 incurable cases in the third stage we have 108 cases of which 4 died from cancer, leaving 104 cases or 96.3 per cent of the cases in the first and second stages well and without evidence of recurrence at the end of five years.

In 218 cases of cancer of the lower lip seen and treated in private and hospital practice over a period of nine years, 119 cases have been selected because they have been followed for more than five years. These cases have been briefly summarized in table No. 1. It will be observed that there were eighty-six cases in the first stage, all of which responded to x-ray treatment and remained well for more than five years. There was no evidence, at any time, of a recurrence in the state of the primary lesion or metastases to the lymph nodes. A number of cases in this group are living and well ten years after the lesions were healed. In the second stage there were twenty-two cases, all of which responded to radiation therapy. Later, four of the cases in this group developed metastases in the glands of the neck, all of which had lymph node involvement at the time of treatment. All of the cases in this group died from cancer. An analysis of the cases in this table will interest the reader. It will be noted that all of the eighty-six cases in the ifirst stage responded to x-ray treatment, or in other words, there were 100 per cent of cures in this stage. In the second and more advanced stage, all of the twenty-two cases responded to x-ray treatment and the primary lesions healed. Later, four cases developed secondary lesions and died. In this group, because of the four deaths, there were eighteen cases (77.9 per cent) that were free from cancer. All of the eleven cases in the third stage were incurable from the time of examination and rightly should not be included in an estimate of the curative effects of radiation. If we eliminate the eleven incurable cases in the third stage group, there will remain 108 cases, of which four in the second stage group died from cancer. Of the 108 cases, 104, or 96.3 per cent, were cured and never showed any evidence of recurrence.

3. PLATE No. 1. In figure A is seen a good example of cancer of the lower lip in the first stage. The lesion is on the right side, small but distinctly indurated with beginning ulceration. Figure B shows the condition of the lip after x-ray treatment.

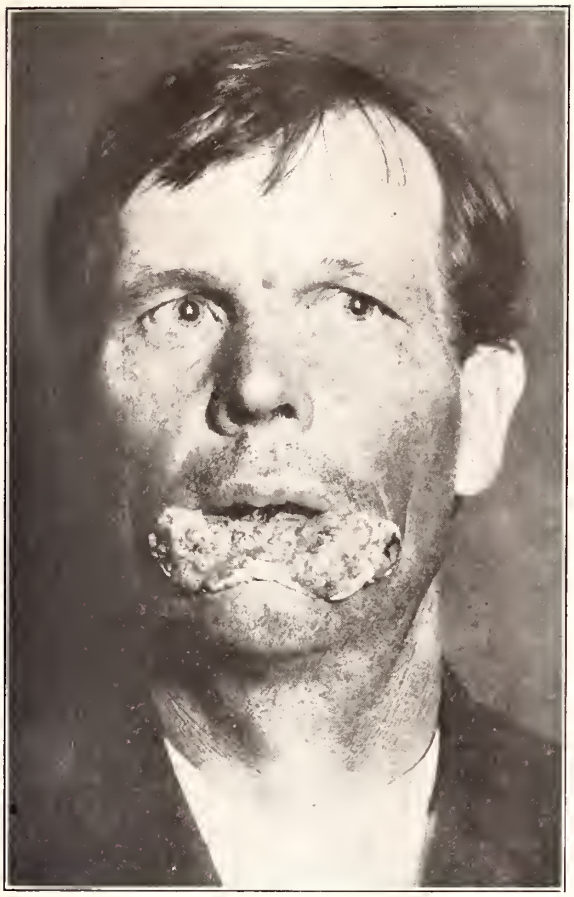
Ages	No. of cases	Well 5 years	Relapsed	Improved, not cured	Died from cancer	Died from other causes	Males	Females	Living
20 to 30	9	9	0	0	0	1	9	0	8
30 to 40	30	28	0	2	2	3	28	2	25
40 to 50	40	38	2	2	2	4	38	2	34
50 to 60	22	16	2	6	6	4	20	2	12
60 to 70	13	11	0	2	2	6	13	0	5
70 to 80	5	2	0	3	3	0	5	0	2
Total	119	104	4	15	15	18	113	6	86
Per cent	.....	87	3	12	12	15	95	5	71

TABLE No. 2. The 119 cases of cancer of the lower lip have been grouped according to age into ten year periods. The greatest number of cases occurred between 40 and 50 and the greatest number of deaths from cancer occurred between 50 and 60. The greatest number of deaths from other causes occurred between 60 and 70.

A study of table No. 2 will be of interest to the student of cancer. The 119 cases of cancer of the lower lip have been grouped into ten-year periods ranging from 20 to 80 years. It will be noted that the greatest number of cases appeared between the ages of 40 and 50. The youngest case in this series was 27 and the oldest case was 80 years of age. Of the 119 cases of cancer of the lower lip, a relatively fatal disease, fifteen died from cancer and eighteen died from old age and other causes, leaving eigthy-six living and well five years after treatment. It is interesting to note that fewer cases died between the ages of 30 and 40, and 60 and 70, with the highest death rate between 50 and 60. The low death rate between 70 and 80 is probably due to the fact that those who contracted cancer in the early cancer period (40 to 45) were either promptly cured and remained well or they lingered along into the fifties, where they died, thereby swelling the death rate in this ten-year period.

While radiation treatment of cancer of the lower lip, as a curative measure, compares favorably with other methods of treatment, it has a greater advantage in that cases treated by radiation sufer little or no scar or scars over the cervical regions and they are not confined to the hospital or their homes during the periods of treatment. Furthermore, there is a reasonable assurance that there will be no recurrence of the growth in the region treated. In the third stage cases, a cure is not contemplated, but much can often be done in the way of palliation by removing or improving the primary lesions, reducing the induration and inhibiting the process of the disease for varying periods of time. The patient feels better, his appetite improves, weight increases, his con-

4. PLATE No. 2. Figure A shows a typical example of cancer of the lower lip in the second stage. The growth was indurated, ulcerated, and involved both the cutaneous and mucous surfaces of the lip. There were no palpable lypmh nodes. In figure B is seen the result of x-ray treatment.



5. PLATE No. 3. This picture illustrates better than words can describe the pathetic condition presented by a patient in the third stage of cancer of the lower lip. Treatment was refused in the early stage when a cure might have been effective. At the time this picture was made, there was extensive glandular involvement on both sides of the neck. Treatment was again refused because a cure could not be encouraged.

fidence is restored, and life is prolonged for weeks, months, and sometimes years.

The technic of radiation therapy is not 100 per cent perfect, but it is sufficiently accurate to meet all clinical demands. The present system of dose determination in R units is a reliable method of measuring the amount of x-rays that the tissues receive, but, like all other methods of therapy, a total cancer dose of radiation that will meet the requirements of every case can not be adopted. We must continue to deal with individual conditions and the judgment of the physician, born of long experience, will always be the most important factor in the successful treatment of this disease.

In the beginning, radiation therapy, like surgery, was not very successful in the threatment of cancer inside the mouth. With greatly improved facilities, radiation therapy in this region now promises to equal the results obtained in the treatment of cancer of the lower lip. In the treatment of malignant conditions on the inside of the mouth, it is our custom to use a modification of the Regaud technic as described by Cade, rather than the radion implant method commonly used in this country. Fungating masses of cancer tissue, often a source of infection, are destroyed and removed bloodlessly by electro-coagulation. Sections are taken from each case and submitted to a competent pathologist. Small platinum needles, measuring 1 and 2.6 cm. in length and containing respectively 0.6 and 1.3 mgs. of radium element, buried in the tissues about the lesion for seven or eight days, have in our hands given good results. The needles have wall thickness of 0.5 and 0.6 mm. respectively. Experience has proved that the necrotic and painful effects of highly filtered radiation on normal tissue is far less severe than that produced by steel needles .The platinum needles cause little discomfort although they are sewn in the tissues for seven or eight days. They will usually destroy a cubic centimeter of cancer tissue per centimeter length of the needle.

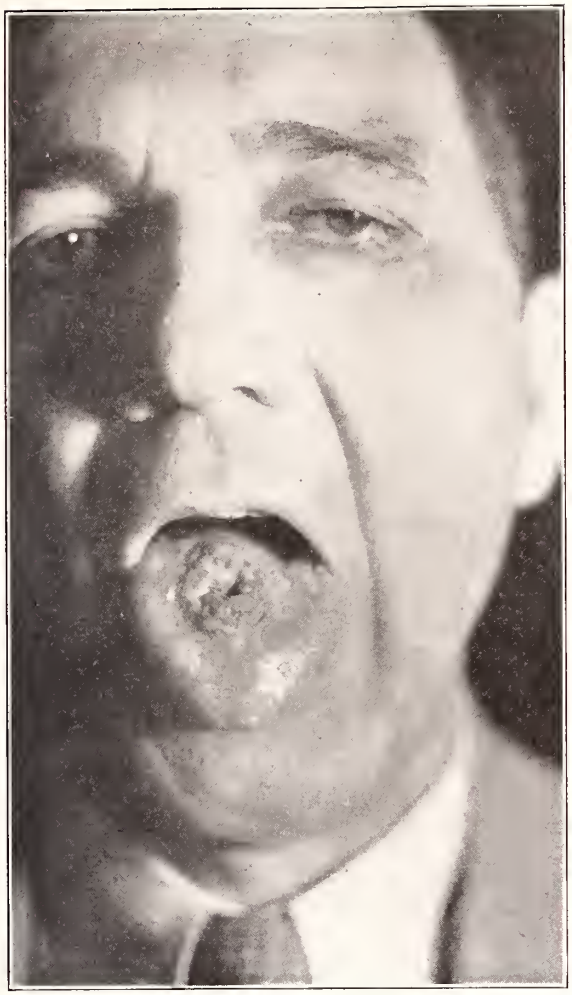
The method of introducing them into the tumors in the mouth is very simple. Pledgets of cotton saturated with a 10 per cent solution of cocaine are held against the areas to be treated, for ten minutes. The tissues are then thoroughly infiltrated with 1 per cent butyn, after which the needles are introduced painlessly and held in place with sutures placed in the normal mucosa. Care should be taken to place the needles one centimeter apart so as to completely surround and pass beneath the growth. If a radiograph is made after the needles have been introduced, their exact position can be determined. The mouth must be kept as clean as possible at all times. A good mouth wash will be helpful, but the kind of wash does not matter so much provided it keeps the mouth clean and does not increase the discomfort. Chlorozene powder dissolved in water and weakened to tolerance, is a favorite with most patients. Chartex, diluted 1 to 3, is useful if the mouth is tender. Wash the mouth thoroughly after each meal and paint the lesion with two per cent mercurochrome. Capsules containing radium element filtered with an equivalent of three millimeters of lead, in contact applicators of the type advocated by Grier and Widmann, have been helpful and are often used to augment the effect of the needles in difficult locations. Malignant growths in the tongue, cheek, floor of mouth, alveolar margins and anter-

ior pillars respond to this technic. The tumors melt down in from one to three weeks and a superficial grayish membrane appears in the area treated. The membrane is in no sense a slough, and is accompanied by little or no pain. Soft and liquid foods are taken freely during and after the treatment. At the end of from three to six weeks, the membrane begins to disappear rapidly and healing takes place. The lesion is usually healed in from one and a half to two months. The 0.6 mg. needles may be used in close proximity to the bone without untoward effects.

Externally, highly filtered radium packs and deep x-ray, supplement the needles and capsules of radium used inside the mouth.

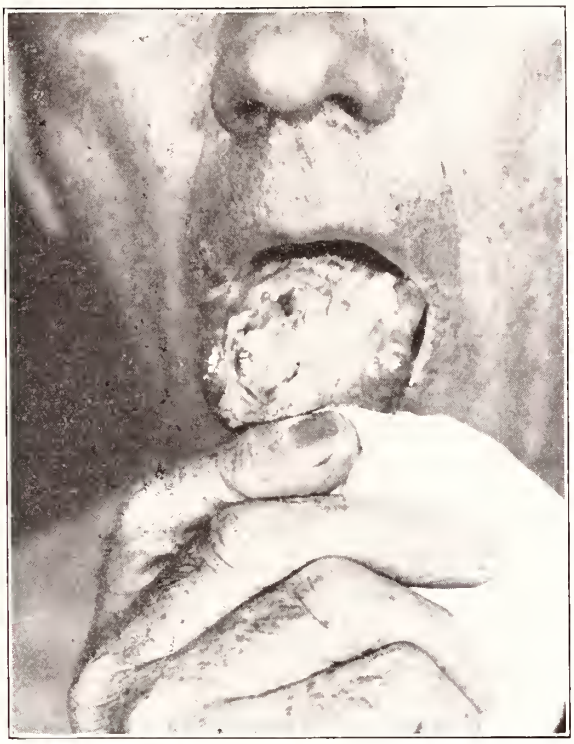
6. PLATE No. 4. In figure A is a picture of a squamous cell carcinoma of the left lower alveolar margin. In figure B the growth has been completely eradicated by the interstitial use of radium platinum needles.

7. PLATE No. 5. In figure A is a picture of a squamous cell carcinoma of the anterior lower alveolar margin. Figure B shows the result of treatment with imbedded platinum radium needles.

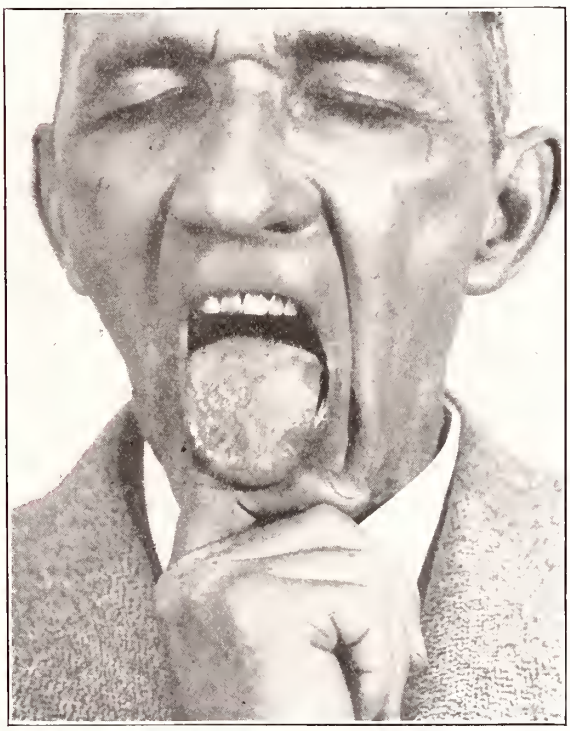


8. PLATE No. 6. Squamous cell carcinoma of the tongue before radium treatment.

9. PLATE No. 7. Radiograph showing the positions of the needles after insertion.



10. PLATE No. 8. Photograph of the tongue at the end of eight days when the needles were removed.



11. PLATE No. 9. Photograph of the tongue as it appeared one year after treatment. The patch of leukoplakia on the left side of the tongue has no relation to the original tumor. The tongue is soft and pliable and there is no evidence of recurrence.

The skin will tolerate a surprisingly large amount of combined radiation, as the workers in the Memorial Hospital, New York, have pointed out.

When the lymph nodes of the neck are involved, large doses of implanted radium supported by radium packs and x-rays, externally, will be helpful. It is our feeling that the value of block dissection is not definitely established in these cases and we have been slow to advise it except in selected cases.

We have not used this technic enough to report statistics of any great value, but our results have been so favorable in a considerable number of cases that we believe that we are curing many intraoral cancers and certainly are benefiting patients who cannot be cured.

While the status of radiation therapy is firmly established in every medical center in this country, and is being used extensively in the treatment of cancer, it must be understood that the remedies are not without their dangers and that radiation therapy should not be entrusted to those who are not thoroughly acquainted with its possibilities. Over-treatment may result in painful chronic necrosis, while under-treatment is of little or no value. The normal tissues will usually stand a considerable degree of over-radiation without harm, and the experienced and careful physician will aim to stay well within this limit.

CONCLUSIONS

1. In our judgment cancer of the lower lip and on the inside of the mouth in the early stages, does not frequently metastasize.

2. All cases of cancer of the lower lip are roughly grouped into three stages. All of the cases in the first and second stages usually respond promptly to radiation therapy. All cases assigned to the third stage are considered incurable from the time of the examination.

3. In the report of 119 cases of cancer of the lower lip treated by x-rays, eighty-six were in the first stage, twenty-two in the second stage, and eleven in the third stage, or incurable stage.

4. Those comprising the first and second stages—108 cases—showed no evidence of metastases during time of treatment. Later, four cases in the second stage group developed malignant nodes in the neck and died from cancer. The remaining 104 cases (96.3 per cent of the cases in the first and second stages) are still living or have died from other causes.

5. All of the eleven cases in the third stage had definite lymph nodes when first seen. All of the lesions in this stage were improved, the patients were more comfortable for varying periods of time, but they all died.

6. We are convinced that early malignant lesions on the inside of the mouth respond remarkably well to small amounts of radium in platinum needles implanted in the tissues for seven or eight days. The interstitial use of radium inside of the mouth is augmented by highly filtered radium packs and x-ray externally.

7. Keeping the mouth as clean as possible is an important factor in the successful conduct of this class of cases.

8. Incurable cases of cancer in the mouth and on the lips can often be greatly benefited by radiation therapy, while in some cases life may be prolonged for several months and the patients given a considerable degree of comfort.

THE DIAGNOSIS AND MANAGEMENT OF RECTAL CANCER

CURTICE ROSSER, M. D., F. A. C. S.

(Read before the Annual Meeting, New Mexico Medical Society, Albuquerque, May 21, 1931. From the Section on Proctology, Baylor University School of Medicine, Dallas).

Carcinoma of the large gut, the typical intestinal neoplasm, has an incidence exceeding that of gastric cancer, and 5 per cent of all cancer deaths are due to a rectal carcinoma. This lesion, untreated, has a 100 per cent mortality. Effective treatment is necessarily radical in scope and, entailing as it does in most instances an artificial anus, far-reaching in its effect on the patient's after-life. The responsibility which accompanies the final decision that in any given case rectal malignancy is present, is profound, since an error on either side may lead to disaster.

While the definite etiology of cancer is, of course, unknown, there is an explicit and growing feeling at this time that, if the incidence of cancer of this area is to be reduced, more attention must be paid to the detection and removal of benign pathology, including polyps, villous adenomata, and, in the anal canal, infected hemorrhoids, fistulae, fissures and areas of granulation in connection with scars.

Mummery, Yoemans, Bargen, and many others, have introduced evidence that the histogenesis of colonic carcinoma is mediated through the precancerous formation of polyps, and the writer has elsewhere (Amer.

Jour. of Surgery, Feb. 1931) called attention to the fact that, in cancer in the anal canal, which makes up 10 per cent of rectal malignancies, investigation will reveal previous presence of long-standing anal lesions in a large majority of cases.

I have review a series of fifteen cases of anal cancer occurring on my rectal services at Baylor and Parkland Hospitals, and it was interesting to find that, in each of fourteen of the number, a long history of some symptom-producing lesion was present. The malignancy had developed in fistulous tracts in seven, it was found in or replacing internal hemorrhoids in six (the history pointing to the presence of protruding and bleeding piles for periods varying from ten to thirty years) and in one a long standing cryptitis and papillitis was present.

Although there has been opinion to the contrary expressed in the literature of the subject, it is therefore my own feeling that unsound tissues in the anal canal, resulting from the long-continued presence of various forms of common anal pathology with infection and irritation, have a provocative reaction which may lead to malignant change. It is not, of course, contended that lesions in the anal canal influence the development of cancer higher up in the bowel, nor is it my contention that anal cancer develops, necessarily, directly from the prior benign lesion; polyp formation is unquestionably an intermediate stage in neoplasm in the upper mucous lined portion of the anal canal where glands are present and where the malignancy is usually an adenocarcinoma as differentiated from the epitheliomata of the lower anal canal.

The early diagnosis of rectal and anal lesions is often tremendously complicated by the overlapping of the syndrome from the benign condition, to which the patient is habituated, with the slight irregularities which are often the only beginning danger signals. It is therefore justifiable to insist that even mild evidences of rectal dysfunction of more than a few days duration, demand careful investigation.

Probably the most constant early sign is a sense of discomfort in the rectum, not relieved by defecation. Bleeding may not be severe, and bleeding may arise from other causes, but all rectal cancers bleed. Pain is usually present in anal cancer early, rarely in ampullary cancer, although referred pain to the sacrum or lower abdomen is sometimes seen. Constipation and "morning diarrhea" are significant when they appear, but are not always present.

In the intermediate stage of the development of the neoplasm, the usual symptoms are: (1) constipation, or alternate constipation and diarrhea; (2) discharge of blood, alone or mixed with mucus or pus; (3) pain (in cancer at or near the anus), and (4) moderate weight-loss.

In admissions to Baylor Hospital, the growth was found to be located in the ampulla most often, the recto-sigmoid juncture half as frequently, and the anal canal one-fourth as frequently as in the ampulla.

As was pointed out in an earlier contribution (Texas State Journal of Medicine, March, 1925) there are characteristic localizing symptoms for each of these sites in a further stage: gross bleeding and intermittent obstruction in the recto-sigmoid growths; chronic increasing constipation, with occasional mild hemorrhage in cases in which the ampulla is involved; pain, in anal cancers; and anemia and weight loss in all.

It is not the province of this paper to discuss the casual diagnosis of hemorrhoids made in the early stages of one-half the cancers, nor the casual hemorrhoidectomy done without a proctoscopic examination in 25 per cent of the cases.

Even in the presence of an honest attempt to make an accurate diagnosis—keeping in mind the proctoscopic appearance of the neoplasm when visualized, a single elevated ulcer, with necrotic crater and normal periphery, or a firm, granular, bleeding mass growing into the lumen, with indurated base cases occur which by reason of some freak of appearance or symptoms, puzzle—and confuse.

A common source of error, in my observation, has been from the presence after phenol injections of the characteristic oil retention tumors common as a sequela of this treatment, or from induration produced in the same way in polyps mistakenly injected as hemorrhoids.

Benign strictures may present the problem of weight loss, discharge of blood and pus, with annular ulcerated tumor. The simplest diagnostic point, in case of doubt, is a radiograph of the colon, which shows a distinct narrowing and straightening of the entire rectum, due to perirectal fibrosis, even in short benign strictures, while malignant stenoses show dilatation of the bowel immediately above the point of constriction.

In reference to biopsy, the lesser of two evils in doubtful cases, my own custom has been to remove tissue from a centripetal growth through the proctoscope without hesitation using a guillotine punch and elec-

tric cautery, but in a centrifugal neoplasm, to be prepared to do a radical operation immediately if the frozen section reveals malignancy.

CHOICE OF OPERATON

To clarify the discussion, we may assume as granted these conclusions, arrived at by all competent authorities:

1. Attempts to preserve the sphincter muscles in cancer below the rectosigmoid flexure, are injudicious; the artificial anus is the price to be paid for cure or alleviation of the disease. My own impression is that the patient is more often discouraged by some physician in connection with this essential procedure than by his own disinclination.

2. Local removal of small malignancies is not only useless but incites renewed spread.

3. The local removal and section of all innocent or precancerous anal or rectal pathology is, however, the only known prophylaxis against the disease; this applies particularly to adenoma or polyp.

Determination as to operability is, of course, the first question occurring in the individual case, and, since from 50 to 60 per cent of patients present themselves with inoperable lesions, this group, large in number, require special consideration as to the proper method of handling. Extension of the tumor to adjacent organs is the most common bar to radical removal; extension by way of the lymphatics, usually occurring later. Venous extension to the liver, fortunately, is uncommon, except in late stages.

I prefer to do a colostomy immediately, without waiting for the inevitable obstruction, on the inoperable case; secondary infection of the growth is thus decreased, and radiation, a powerful and effective palliant, is made possible in sufficient dosage to shrink the neoplasm, stop hemorrhage, and hold extension in check. The interstitial implantation of radium needles through a perirectal incision, as suggested by Sir Charles Gordon Watson and others, offers a new and most effective treatment for low-lying inoperable growths.

The colostomy can be done satisfactorily under spinal anesthesia, unless the patient has a subnormal blood pressure—infiltration anesthesia in slender individuals, or ethylene in the fat, serving the latter group.

Two procedures will suffice to illustrate the method of handling the operable rectal cancer: that of Miles, the one-stage radical abdominoperineal operation, and Mummery's two-stage radical perineal excision.

Miles' procedure is theoretically the ideal surgical attack, just as a Wertheim hysterectomy is ideally to be preferred to the usual panhysterectomy. It includes the removal of the whole of the pelvic colon, together with the whole of the rectum, encased in its sheath of fascia propria, the whole of the pelvic mesocolon, the peritoneum lining the floor of the pelvis, together with the whole of the levatores ani muscles, ischiorectal fat and a wide area of perianal skin.

Miles' own mortality in the procedure was originally 42 per cent, and, while he has in late years lowered this figure, the death rate will continue to be prohibitive in the old or the fat.

Mummery, after an extensive experience with the abdominoperineal procedure, now reserves it for special cases in which the growth is very high. Since 1915, he has been performing a very radical perineal removal of not only the perineal skin, levatores and ischiorectal fat, but by opening the peritoneum, the fat and glands in the back of the pelvis, and the entire rectum, with its mesorectum.

Through this operation, which is preceded by an exploration of the abdomen, to rule out dissemination, and a left rectus colostomy, an astonishing amount of tissue can be removed. The patient is fed on solid foods at once, and, if asepsis is accurate, the wound heals in two or three weeks.

The perineal procedure removes area of local extension, as well as the zones of lateral and downward, with part of the upward zone, of lymphatic spread—and the operative mortality runs near 10 per cent, even when cases are included which would be inoperable otherwise. It is ideally performed under indradural caudal block, preceded by a liberal dose of sodium amytal orally.

DISCUSSION

DR. R. O. BROWN, Santa Fe: Dr. Rosser's paper has been most interesting and I should like to ask him if injection of true hemorrhoids with carbolic acid has anything to do with bringing on a carcinoma.

DR. ROSSER, (closing): In answer to Dr. Brown, I have no reason to believe from anything I have seen in the literature that the injection of hemorrhoids with any chemical brings on malignancy. However, in perhaps 50 per cent of those cases injected for hemorrhoids, malignancy has already been present.

PERSONAL OBSERVATIONS OF CHOLECYSTITIS

JAMES VANCE, M. D., F. A. C. S.
El Paso, Texas

(Read before the New Mexico Medical Society, at its Forty-Ninth Annual Meeting, at Albuquerque, N. M., May 20-22, 1931.)

Decidedly, my most personal observations of cholecystitis were in my own case. When 19 years of age, I contracted a most serious case of typhoid fever and two years later I had a severe catarrhal jaundice and for a week I was as yellow as the proverbial pumpkin. During the whole ten days of this attack, I was up and about performing my regular duties. I remember, though, that I was quite sick and should have been in bed the whole time. In spite of this total disregard of common sense, to say nothing of good treatment, I was apparently as well as ever in ten days' time. After this, I had no illness of any importance till January, 1922. In the interim, I had passed without difficulty several insurance examinations and physical examination to the United States Army during the Great War.

About the middle of January, 1922, I had arisen as usual and taken my morning bath and was dressing, when I was seized with a severe pain in my epigastrium. This pain lasted only 30 seconds, when I felt the stone slip back into the gallbladder from its engagement in the cystic duct. The pain disappeared as suddenly as it had come on, and I remarked to my wife that I had gallstones. Nearly three months went by before I had another attack, quite as sudden as the first in its onset, but the pain persisted, and in about half an hour I had a doctor friend give me ¼ grain morphine by hypodermatic injection. The pain soon began to subside and in ten or fifteen minutes it was gone. The relief was so great that words cannot describe the gratitude one feels to be free again from so agonizing a distress.

Twice again, during June and July, I had very short attacks, much like the first. During both attacks I happened to be driving my car, and once, during the most severe one, I had to drive to the curb and wait for the pain to subside before driving on. During all the years following recovery from my jaundice attack and during these initial months of my gallstone symptoms, I never was the least bit sick, nor did I have any digestive disturbances of any kind. Immediately the pain ceased, I was ready to go. I ate with enjoyment, slept well, played golf every time I could, and worked hard all the time.

Early in September, as my annual vacation, I went to Santa Barbara, California, to visit a friend. For about ten days I played golf every day—frequently thirty-six holes—nor could I see that I tired any more than usual, and that was practically not at all. Then, without the least warning, my fifth attack of gallstone colic began just before dinner and lasted till I took a hypodermic injection of ¼ grain of morphine just before midnight. So exhausting is this terrible pain that, after I had endured it for five hours, I could neither prepare nor give myself the hypodermic injection, but could only direct my good lay friend how to prepare and administer it. In a few minutes the glorious relief came and I slept all the rest of the night and until late the next morning. I ate a good breakfast, and a light lunch at one o'clock, and then played eighteen holes of golf, as usual. I played about my usual game and with no discomfort, though my side over the gallbladder region was tender to palpation.

I think we professional men should learn proportionately more from personal experiences than from observation of our patients. From my first severe attack I thought of an operation, and, being Scotch, I thought of turning the experience to some advantage. I had in mind making myself famous by describing accurately the character of the pain. After each attack I tried so to describe it, but, to my disgusted surprise, I could not do so. It was just a severe pain in the epigastrium, radiating to the back of the liver and to the right of the spine, and, in my case, not radiating to the right shoulder at all. It was a tremendous pain, with a feeling of a great weight upon the epigastrium, during which I could neither lie down nor stand, but felt impelled to move about in a crouched position, trying first one thing and another without avail. The pain is agonizing and continuous, with no respite, till an opiate is taken.

Following an attack, I would wonder what it was all about, and, not being able to use either physiology or pathology to describe what had happened, my mind would turn to some homely, inadequate comparison. To my imagination I was supine with an enormous elephant standing with all his weight on his great front foot firmly implanted upon my epigastrium. Struggle as I could, the heavy pain could not be moved. The elephant is very still—neither does he shift his weight—but, when the opiate is taken, he slowly and apparently reluctantly withdraws his heavy foot. The pain is then gone till the brute again crosses your path and repeats the performance.

For five days after the above described attack, I played golf every afternoon, but on Friday evening I had another attack and I had sense enough to take the hypodermic at once. This time the pain was not so quickly relieved as before and the next day, Saturday, I did not eat or play golf either. Sunday I stayed in bed all day and called Dr. Samuel P. Robinson. Dr. Robinson, after looking me over, began to suggest in a diplomatic way that I go to the hospital. I told him that I was not only ready to go to the hospital but was ready to be operated whenever he thought best.

I went to the hospital that Sunday night and was prepared for operation the next morning, because Dr. Robinson thought he saw signs of approaching jaundice. The next morning I was better and the operation was postponed till the following morning. I was so prepared each night and operation postponed till Wednesday when Dr. Robinson considered conditions right for the "party", as he expressed it.

My surgeon suggested that x-ray examination and other diagnostic methods be employed, but I declined with thanks. What I wanted was that gallbladder removed, to get rid of my sword of Damocles which constantly hung over my epigastrium instead of over my head.

On Wednesday morning, Dr. Robinson did a lovely operation for me, an operation for which I have never ceased to bless him. The gallbladder, tightly packed with sixty-odd medium sized stones, was removed. I do not think that an opiate was given me immediately upon waking from the anesthetic, as is now the custom with most of us surgeons. At all events, the pain from the operation was almost negligible and as nothing, compared to even the mildest gallbladder colic.

The thing that bothered me most during the whole operative recovery, was the nausea from the ether. For twenty-four hours I vomited about every fifteen minutes and was very miserable on that account. At that time the Kanavel or duodenal tube was not in common use, and I was unfortunate in not having this greatest boon to relieve postoperative nausea. At the end of twenty-four hours I was still very much nauseated and very miserable. The dressings seemed very tight and uncomfortable, and I begged to have the dressings changed, which Dr. Robinson kindly did. It was a great relief to have the tight-feeling bandage and the bile-soaked dressings removed. Immediately after this dressing, the nausea ceased and I was comfortable all the rest of my convalescence.

In every case I have operated on since then, I have never failed to watch that the dressings are not too tight, and I believe I have made my patients more comfortable and perhaps less nauseated, by so doing.

In ten days I was out of the hospital and back home. On the eighteenth day, I was back in the operating room again, but this time I was operating on the other fellow. On the twenty-first day, I played my first round of eighteen holes of golf, and played just about as well as usual and without any discomfort. I was careful, however, not to put any effort in the long shots, though I felt no discomfort in swinging the clubs.

For six years I was entirely free from trouble of any kind. Then, without any warning, one morning, about one hour after breakfast, and for no traceable cause, I bebegan gradually to have a pain in my epigastrium. I lay down on a couch and in about fifteen minutes the pain subsided without treatment of any kind. I do not know whether there is such a thing as acute indigestion, but for lack of a better term I shall call this attack by that name.

Two other attacks of this nature, but much more severe, have occurred since then. The first was during Christmas week of 1929, and the second during January of 1931. Both of these attacks occurred after strenuous days with gun afield and probably too much and too indigestible food.

Both of these attacks were relieved by soda. I had a good opportunity to prove the value of soda in hot water as compared to soda in cold water, and in my case the hot water is so superior that there is no comparison. The hot soda water relieves the pain almost at once, although it may have to be repeated several times to keep pain away till the attack passes. Cold soda water is much slower in action and is not half so grateful to the stomach as the hot solution. The solution should be as hot as can be swallowed without actually scalding.

These attacks are nothing like so severe as the gallstone attacks and with these attacks I felt sick all over and wanted to lie down and be still, while with the gallstone attacks I could not be still in any position and was not sick at all—there was only the intense pain.

These attacks, I think, are due to the damage already done my liver prior to operation, and, though they may be due to formation of common or hepatic duct stones, it is more probable they are due to insufficient bile secretion.

OBSERVATIONS ON DIAGNOSIS

It is a peculiar thing about cholecysititis that the condition may persist for years with slight, or no, symptoms, and then burst into a fury that drives the patient to operation sooner or later in spite of all that can be done by the skilled internist by both medicines and diet. In the earlier stages the diagnosis may be, and often is, very difficult. Gallstones—one of the latest developments of cholecystitis—may not give sufficient distress to be even noticed by the patient and, of course, cannot be diagnosed. Postmortem examinations in which unsuspected gallstones are found, and those found at operation for some other condition, bear ample testimony to this fact.

Severe typical gallstone attacks are, as a rule, easily diagnosed, but it must be remembered that epigastric pain frequently occurs in cholecystitis without stones, that is nearly or quite as severe as a gallstone attack. Cholecystitis, without complicating diseases, is ever the story of more or less continual nagging gastric indigestion, and pain, and soda-water taking. The hunger pains of gastric and duodenal ulcer are nearly always absent. Empty stomach and intestines in cholecystitis insures freedom from pain.

OBSERVATION ON TREATMENT

Cholecystitis should always be treated medically for a sufficient time to determine certainly whether it will yield to such treatment. By so doing, the skilled internist will cure many cases, and those that must have surgery can be turned over to the surgeon in the best possible condition for operation. On the other hand, the internist under no condition should keep encouraging these patients to continue trying this and that medical treatment when the patient is obviously doing badly, for when the patient persistently does badly, there are changes which take place in the liver, which neither surgery nor any other treatment can restore. At best, surgery can preserve only what function is left to the liver.

Aside from empyema of the gallbladder and some other rare conditions, the gallbladder is never an acute surgical condition. It is not an operation to be taken lightly even in the highly developed safe surgery of today. Especially is this true in the enfeebled aged or the sick younger patient. All the time that is necessary should be taken in preparing the patient prior to operation to insure the best possible condition of all the vital organs. Especially should the excretion of urine in ample excess safety be secured. In the aged and enfeebled patients, blood urea tests of the kidney function should be taken and operation should not be undertaken till it is 50 mg. or below—preferably below that figure.

If care is taken in this preparation, it is little short of astounding how the aged and poor surgical risks will recover from cholecystectomy with an ease and safety almost equal to the patient in the forties.

In doing the operation, do a clean-cut cholecystectomy. If you decide the gallbladder is not at fault, leave it alone. The only exception to this rule is in pancreatitis, when long-continued drainage of the bile through the gallbladder may be advisable.

The appendix should always be inspected and removed when there is any pathology present, and, in 90 per cent of these cases, such pathology is present. Especially is this true in younger patients, and care should be exercised to remove not only the appendix, but especially the terminal ileal adhesions. The removal of these adhesions is even more important than removal of the appendix itself, because the intestinal adhesions resulting from old appendix attacks —perhaps twenty years or more ago—are the real cause of any digestive disturbances for which the appendix in any given case is responsible. Of course, the appendix should always be removed to prevent possible recurrent attacks and, consequently, reformation of adhesions.

Postoperative adhesions in gallbladder cases may be very annoying, so the prevention of such adhesions is always a consideration for serious concern of the surgeon. From a long experience and a careful study of the matter, I am of the opinion that two things only will prevent postoperative adhesions: first, a clean-cut operation in which all pathology present is removed; and, second, to avoid, like the plague, all operations within the abdomen during the inflammatory stage. For the same reason avoid all emergency operations as far as possible. Of course, emergency operations must be done —especially in acute appendicitis cases—but if the patient is operated on at the correct time, the inflammation has not spread beyond the appendix, and postoperative adhesions are so avoided. On the other hand, think of the terrible postoperative intestinal adhesion cases which have required reoperation, and you will recall that nearly all of them were due to ruptured appendix or inadvised removal of pus tubes, or nearly any of the emergency operations, excepting acute appendicitis, which may have been forced upon the surgeon. The density and quantity

of adhesions are always in direct proportion to the extent of the peritonitis which was present at the time of the former operation.

Whenever possible, operations during attacks of jaundice should be avoided. In my own experience, where the janudice could not be cleared up, aside from obstruction of the common duct by stone. I have often found cancer of the liver, gallbladder, or head of the pancreas, as the underlying cause.

When all is said and done, surgical cholecystitis is like all other surgical conditions—the earlier the operation the better the results. If the surgical cases are separated from the medical cases as promptly as possible, more and better functional recoveries will result.

DISCUSSION

DR. S. D. SWOPE, El Paso, Texas: Dr. Vance's paper is of great importance to all of us. He describes exactly the symptoms he had and tells us exactly what to do should we undergo a similar ordeal. He has given us a clear-cut idea of the condition, not only from the viewpoint of the patient, but has also told us how it should be cared for by the surgeon.

DR. VANCE, (closing): I realize that this subject, or even one phase of it, is entirely too great to cover in any one paper, I just wanted to make such personal observations of the things that appealed to me and to comment upon them. All these cases of pain in the epigastrium should be thoroughly worked out, before operation, from a medical standpoint. When they do not work out properly with medical treatment, then call in the surgeon without delay. As far as the necessity for a surgeon in early cases of cholecystitis is concerned, I do not think it advisable; all surgery should be done most conservatively, except in those cases where it must be done at once, and then there should be no delay.

BRAIN INJURIES

S. D. SWOPE, M. D.
El Paso, Texas

(Read before The New Mexico Medical Society, at its Forty-Ninth Annual Meeting, at Albuquerque, N. M., May 20-22, 1931.)

Brain injuries, though among the most common of all serious traumata, have received very little real attention by modern medicine, previous to the last twenty years.

The skulls of ancient Peruvians that show many evidences of crude trephining for decompression, must have received many hard knocks with war clubs and stone hatchets, to justify the prehistoric surgeon in his efforts to remove pressure on the delicate brain substance by the use of obsidian knives. The stone hatchet and war club are no longer important factors in our consideration of brain injuries, but a new juggernaut has come into being, and the head injuries by automotive vehicular transportation have brought about much consideration of cerebral injuries.

Brain injuries can be divided into four classes: those resulting from external violence; those resulting from infection (of the encephalon or its covering membranes by some hemolytic, morbific agent) acute, chronic, general or localized in character; those arising from new growths (of biologic prigin); and those arising from psychic shock.

Brain injuries resulting from external force may be divided into concussion, compression, compound and comminuted fractures of the bony protection with lacerations and punctures resulting. Each of these conditions presents specific reasons for due consideration in each individual case.

We will consider chronic injuries from apparently mild force. One of the first considerations of a neuropsychiatric case is to decide whether the injury is due to cell changes or communicating track injury. The decision is not always easy to make, as to whether the condition is due to injury to brain substance, neuronic and dendritic in character, or to cordal influence.

By far the greater number of injuries of the brain are due to concussion. When we take into consideration the ease with which external violence may be applied to the cranium, the delicate character of the contents of the skull and its intricate complex, psychological activity, we can easily understand what present damage, and deleterious remote effects, may be produced by even slight external force. A rupture of the middle meningeal artery or its branches, for example. Surely we are frequently called upon to evaluate the statement, "He has not been exactly right since receiving a lick on the head", though upon inquiry the traumatism would seem to be of little significance.

In the consideration of the lacerated and punctured wounds of the brain, we do not have the question of compression so much as that of infection and destruction to some of the cerebral tissues; though we must ever be reminded that a very small wound may so distrub a communicating branch that a serious paralysis may result. Especially is this true of the smaller tracks that communicate through the intracranial nerves. With this class of wound, the importance of drainage is most manifest, since a complete closure in the early stages might result in intracranial pressure from the excessive secretion or edematous effects.

HEMOLYTIC INFECTIONS

The bountiful supply of the circulation within the brain makes infection throughout the blood stream easily accomplished. The character of the brain tissue and its enveloping fluid represents unusually good

cultivating medium for bacterial growth. A blood-stream infection is a constant menace to cerebral injury. In the analysis of any chronic condition, no diagnosis should be made without proper consideration of past infectious disease that may have affected or may now affect the brain of the individual. We have only to recall to our minds Parkinson's syndrome to be able to thoroughly appreciate the foregoing statement.

In some of the simpler concussions, we have brain-cell changes and communicating tract injuries, from which recovery may never be complete. Compression is probably the most important factor in a very large percentage of our brain injuries. What would have seemed to be a simple concussion, without objective symptoms, is sometimes followed by serious compression, by hemorrhage or an excess of cerebral fluid. I have seen a severe extradural hemorrhage result from a comparatively slightly bumped head; requiring prompt decompression, as an emergency operation.

In this connection, I deem it fitting to consider the vast amount of injuries done by compression during the passage of the fetal head through the parturient canal. Birth injuries are much more common than I ever imagined they could be before I took up this branch of study. Within the past year, I have seen twenty-five cases of injury of neuropsychiatric character resulting from birth injury. These cases have ranged from comparatively simple paralysis to dilated ventricles from obstruction of traumatic origin in the aqueduct of Sylvius, foramen of Luzka and Magenda. Among these cases are quite a number of hemaplegias due to rupture of blood vessels during birth. The possibility of cerebral herniation, through the foramen magnum, should receive attention.

When we take into due consideration the physical conditions pertaining during the act of parturition, we are rather surprised that these accidents do not occur more frequently. I am reasonably certain that much of the fretfulness of early infantile life (crying baby) that nothing seems to relieve, is due to some form of injury, and frequently that injury is of the brain. Most of these injuries can be classified as occurring in primal births, forceps interruption, and excessive stimulus of the uterine musculature. Of course, large heads and contracted pelves come in for their share of consideration. Of these birth injuries, hemorrhage is probably the commonest of all conditions, and its significance may not become apparent for considerable time after the injury has been received. In a recent series of three hundred consecutive births, in the New York Lying-In Hospital, in which the spinal fluid was examined, in a large percentage the fluid was found bloody.

COMPOUND COMMINUTED FRACTURES

Compound comminuted fractures of the bony vault are serious in proportion to the injury done to the underlying structures. The most common injury is compression due to the depression of bone. The next most frequent is infection, which may be either local or distributed, by the circulation, to any part of the brain substance.

If we can be assured that there is no serious injury to the brain substance or its covering membranes, and can remove the pressure and prevent infection, we need not be anxious about the results regardless of the extent of the injury. I have seen the whole frontal bone smashed in by the kick of a mule, the dura lacerated, with some loss of brain substance, with recovery complete without physical or mental deterioration. Of course, this is in a comparatively silent area. I have seen both parietals so injured, with compound comminuted fractures involving the vault, over the principal motor areas, and the patient practically return to normal usefulness, where decompression and asepsis were carried out.

INFECTIONS

The commonest morbific agent that we have to contend with in brain infections is probably our ever-present influenza bacillus. It is an insidious agent whose baleful influence may manifest itself after apparent recovery of the patient from the influenza has become complete. Then we have diphtheria, scarlet fever, measles, rabies, mumps, malaria, vaccines, and even tapeworm and others, to think about. A recent case of Cysticerous cellulosae has been demonstrated, in the City-County Hospital of El Paso, through the efficiency of one of our younger pathologists and his enthusiasm for post-mortem findings. How many times have we had mild influenza conditions with rapid apparently complete recovery, followed by the statement, "I have a lethargic condition. I can hardly keep awake, I am sleepy all the time"! Practically all of these cases have some form of encephalitis, varying only by the degree of involvement of the cerebral tissues. The extreme cases of Parkinson's (paralysis agitans) are always recognized, but the milder cases frequently go through life with the psychoneurotic handicap influencing their further mental and physical activity. Then we have cerebral syphilis with its baleful influence on the central nervous

system, including the mental conditions. Fortunately, we have perfected the examination of the blood and spinal fluid to a point where luetic infections of the blood stream and the brain can be detected in practically all instances. I make a routine practice of having the spinal fluid examined in all psychoneurotic cases and especially require it in all cases where the psychosic element is paramount.

Tuberculosis gives us much food for consideration, especially in a county like ours, which imports so many tubercularly infected. Tuberculomas, as well as abscesses of probable tubercular origin, require due consideration; in fact, even a simple localized infection of the pus germ character, in a remote organ, may prove a most important factor in future cerebral conditions.

Of new growths we have time for only slight consideration. They are various, but, with our present knowledge, their presence and position can be determined without great difficulty. It is not always possible to determine the question of their character, and the most pathognomonic symptom is intracranial pressure and its effects.

TREATMENTS

The most important element in treatment is diagnosis, and the most difficult element of the diagnosis is its physical character and regional distribution. It has already been gathered, from the foregoing, that intracranial pressure and inflammatory action must have the first consideration in the treatment of brain injury. It is a principle now well defined that intracranial pressure should be relieved as quick as shock or other specially contraindicating conditions, such as great loss of blood and impossible surroundings, are relieved. I think it is a principle that pressure upon the cerebral tissue should be removed at the earliest possible moment consistent with the conditions existing, whether that pressure be from external pressure (depressed bone) or internal pressure from hemorrhage, edema, swelling, hydrocephalic conditions or neoplasms. Spinal puncture with manometric control gives us a means of controlling a considerable percentage of intracranial pressure. Cisternal puncture and ventricular puncture are justifiable and practical, but are extreme measures which should eb in the hands of experts only. Gummatous growths melt away like magic under proper luetic treatment, and in this condition let us continue to remember the efficiency of our friends, mercury and potassium iodide. I think that, in the case of any growths other than luetic, when they can be reasonably well located, the attempt at their removal is practically always justified, since these conditions are not amenable to therapeutic measures and the prognosis is always grave. Decompression through temporoparietal exposure, always with dural opening and drainage when indicated, will save many of our otherwise hopeless cases and shorten the convalescence of many of those who drag on for a considerable period of time. Recently, in the persuance of our work in a pathologic society at El Paso, we had occasion to remove a brain in which there was an intradural hemorrhage some fifteen years ago. This hemorrhage, being in the rolandic area, was easily located. A timid surgeon trephined the skull but did not extend the opening. He missed the hemorrhage by only a few centimeters. The hemorrhage was ultimately absorbed, but not until the compression had left a large depressed area in the cerebrum some four inches in diameter with a thickness of more than an inch. There was some evidence of the old blood clot, but this circumscribed space was filled with a straw-colored fluid. Had the dura been opened, at least some of the blood would probably have escaped through the drainage.

Encephalitis and its effects are having considerable consideration. The most important recent discovery is probably the effect of fresh tincture of stramonium on the Parkinson's syndome condition. I have been using this preparation for more than a year with satisfactory results in all cases, from the severest to the mildest.

So far, the profession has nothing to offer for the tubercular conditions of the brain.

Certainly abscesses should be evacuated as soon as they are diagnosed, since the possibility of retaining pus pockets by circumscribed infiltration is practically impossible in most of the brain tissue. We are now having a great deal said about the diagnostic possibilities of ventricular cephalograms. We have had a few cases where cephalograms would seem to have been beneficial in the diagnosis, but as yet sufficiently favorable conditions have not been presented to enable us to practise this procedure.

Treatment of psychic trauma is a chapter too long to be written into this paper. A knowledge of this condition can be attained, but by long and persistent research, and its treatment is largely through the modern science of psychotherapeusis. It requires knowledge, ingenuity and patience, but the greatest of these three is patience.

DISCUSSION

DR. JOHN R. EVANS, Denver, Colo.: I was

particularly interested in Dr. Swope's paper and have enjoyed it very much, especially that portion of it relating to birth injuries. It occurs to me that we have paid too much attention to operative obstetrics as producing brain injuries, and that perhaps long-continued labor, drawn out for many hours, does more damage to the brain than we realize. There is another definite condition of women in pregnancy in which there is extreme high tension, no albumin, no known toxemia, and where they have insomnia and are very irritable. The children born of these mothers are very hard to bring up. In the first few days of life, they often die apparently from no reason. This toxic condition may tend to brain injury.

DR. SWOPE, (closing): While I did not touch upon the obstetrical side of the question, I did mention that instrumental delivery and the overexpansion of the uterine musculature might be responsible for a large share of these injuries. The toxic state that we find in advanced labor and all the way through pregnancy in certain women, may be due to some disturbance to the brain circulation, but I have always set it down in my mind as due to some glandular disturbance.

HYPERTENSIVE DISEASE

DAN G. STINE, M. D.,
Columbia, Mo.

(Read before the New Mexico Medical Society, at its Forty-ninth Annual Meeting, at Albuquerque, N. M., May 20-22, 1931.)

This is a disease characterized by increasing arterial tension that has passed 140 mm. of mercury systolic over 90 mm. diastolic, in an individual under forty, or 150 mm. systolic over 100 mm. diastolic, in an individual over forty.

We are bothered somewhat by a confusion of terms in reference to diseases affecting the arteries, the kidneys, and the heart. Hypertensive disease does not mean arteriosclerosis, nor does arteriosclerosis necessarily mean hypertension. Even arteriosclerosis deos not seem to be an entity. We have to differentiate between the individual suffering from soft atheromatous changes in the intima of his aorta and the individual in whom the x-ray pictures of his legs show an unsuspected calcification of the media of the tibial and oppliteal arteries. Neither of these individuals presents hypertension early in the disease and may never do so. There is, however, an arterial change noted in hypertension—a diffuse hypolastic sclerosis—a subepithelial thickening of the intima, hyalin at first but later becoming fatty. The thickening of the intima causes narrowing of the lumen. There is also a reduplication of the internal elastic lamina. This is most marked in the small and terminal arterioles, appearing early and most constantly in the afferent arterioles of the kidney and terminal arterioles of the skin; the arteries of the myocardium, lungs, and gastro-intestinal tract becoming involved late and usually not to a marked degree. This is probably the result, rather than the cause, of hypertension. The changes in the elastic tissue are a response to the strain of long-continued and increased intra-arterial pressure. The change in the arterioles, noted above, is the same arterial change that is found in the heart in cardiac hypertrophy.

Fishberg investigated the arterial lesions of seventy-two case sf hypertensive disease coming to autopsy, and found that the arterioles of the kidneys were affected in every case. In two-thirds of the cases the splenic arterioles were affected; in one-half of the cases the arterioles of the pancreas were involved. The hepatic arterioles were affected in less than one-third, the cerebral arterioles in about one-fifth. This is a striking difference in distribution from arteriosclerosis, which involves primarily the large arteries and which has a predilection to the heart, the brain and the extremities.

There is also confusion between the kidney involvement in hypertension and in chronic Bright's disease, so that it is necessary to differentiate the granular kidney of hypertension from the senile arteriosclerotic kidney and the kidney of chronic glomerular nephritis. In the true granular kidney of hypertension, we are dealing with a morbid process that is not primarily renal but on account of which grave renal damage may result. The lack of relationship between the evidence of renal involvement and the blood pressure, usually enables one to identify the type of kidney lesion.

It is also easy to mistake the large fibrosed powerfully acting heart of hypertension for chronic myocarditis. The estimation of the pulse pressure here is valuable, as the hypertensive heart delivers a large amount of blood very forcefully, so that sometimes a capillary or even a venous pulse can be observed, while the myocardial heart, although large, has a weak musculature and a low pulse pressure.

These differentiations are not always clinically easy, for in some instances we find the palable arteries becoming thick and leathery early in the course of hypertension. Sometimes we find large amounts of albumin, and casts, with retention of protein metabolites and a lowered kidney function, early in the course of hypertension. Again, we will find a marked increase in the transverse diameter of the heart and increase in the breadth of the aorta early in the course of hypertension. As we follow the progress of the disease, however, the varying pictures become more uniform until there is a marked uniformity in the manner of their termination.

Mild hypertensive disease has been described in young individuals. Alvarez discovered forty-five per cent of hypertension amoung male university students and twelve per cent among female students. In the Student Health Service of the University of Missouri, mild hypertension is common but not in such large numbers. I have followed one group of eleven students, whose blood pressure was above 150 mm. systolic over 90 mm. diastolic, for eight years. During this time without any treatment, they have all improved; in three, the blood pressure becoming normal. I somewhat doubt that these individuals are suffering from hypertensive disease as we observe it in the middle-aged individual, for the middle-aged patient usually has a history of normal blood pressure readings previous to the onset of his disease, and in the young individual the hypertension does not seem to be progressive.

ETIOLOGY

All remarks on the etiology of hypertention are speculative for as yet no one etiological factor has been proved the cause of the disease. However, there are a number of speculations that have interested me and that have been some help in treatment. Following are a few of the many theories about the cause of hypertension.

That it is due to an imbalance of the internal glandular secretions, particualrly of the adrenals, the pituitary and the ovary, has only the hypertension of the menopause in women to recommend it. Major has had some interesting results with the injection of a liver extract, heparmone, presumably containing some active principle. While the depressor effect of this is only temporary, it does bring about an improvement in the patient's vascular apparatus, a relief of symptoms, and in some instances, seemingly, a prolongation of life.

Auto-intoxication is a favorite theory and purgation certainly plays a frequent and most beneficial role in the treatment of the disease. There are some products of putrefaction, xanthin, hypoxanthine, guanin, and so forth, which have pressor effects when introduced into experimental animals.

One of the most striking clues to the etiology of hypertension is eclampsia. Beginning with the muscular cramps in the legs in pregnancy, which resemble so closely the muscular cramps in the legs of hypertensive patients, and continuing through the kidney and liver damage which so often ends with persistent arterial changes and hypertension following the acute attack, the similarity to hypertensive disease is striking.

It has been pointed out by a number of investigators that there is a slight reduction of blood calcium in hypertension and that the lowering of the hypertension has been noted after the administration of calcium. Also, a number of remedies that are known to lower blood pressure, such as blood letting, exposure to ultraviolet rays and exposure to radium emanation, are also factors that increase the calcium metabolism of the body.

Personally, I have tried to show that a normal amount of calcium in the blood stream is necessary to the changing of such pressor substances as the guanidine group into the inert creatin and creatinin or into the depressor guanidine. I have been unsuccessful except to demonstrate that the creatinin is often diminished below normal in the urine of hypertensive patients but is increased with the administration of calcium.

I think that it is significant that the age in which hypertension puts in its appearance is the same age in which we see other evidences of a disturbance of the calcium metabolism of the body, as illustrated by osteoporosis involving the maxillae, especially around the roots of the molars, and less often in the humerus, the upper ribs, and the scapulae.

An interesting theory is that hypertension is due to long-continued spasm of the arterioles caused by a neurosis affecting chiefly the sympathetic system, and it is true that the hypertensive individual has a lack of stability of his vaso-motor apparatus, this being markedly influenced by his mental state. Also, that his hypertension and his emotional instability are family traits. Also, that he has a great sensitivity to adrenalin and a tendency to eosinophilia.

Another speculation is that allergy causes the arteriole spasm, but, in my experience, these patients have shown less than the usual percentage of response to the dermal tests for sensitivity.

However, to me the most attractive theory is that of calcium deficiency and the retention of certain metabolites.

Let us leave these etiological speculations and consider the individual himself. Here we are able to recognize an individual who, in his bodily makeup, in his emotional equilibrium, and in his manner of living, seems predestined to be a sufferer of this disease. There is no better description than that given by Moschowitz: "The patients are overweight and sometimes even obese. The neck is short, their bodily movements are sluggish, their carriage and walk are ungraceful and they lack the spring and 'elan'

of the former athlete. Psychically, these people are tense; they pursue their vocation with tremendous seriousness and worry over trivialities. In consequence they are irritable. Phlegm and hypertension are, in my experience, antagonistic. Furthermore these indivuals have narrow intellectual horizons. Their interest in anything outside their business is desultory. They have no hobbies. In their leisure hours they play cards, sit in the theatre, read the newspapers, or rehearse the business activities of the day. Their sleep is not restful and they 'do not believe' in vacations. Who can not recognize in this picture the individual who has been facetiously termed T. B. M., or ' tired business man', whose tastes have activated a large portion of the so-called modern drama? He eats well, drinks alcohol to obtain the stimulation that his mental faculties do not afford, and his most violent daily exercise is his walk to and from the conveyance that takes him to his business. As a rule, these people are 'successful', and they may be said to die of 'success'. His most conspicuous mental incapacity is his inability to play. He is no longer a child. I take it that most of us have something of the child within us. Age is not always a matter of years. The greatest tragedy is when the spirit of the child goes early, as so often happens when it is blighted by the premature struggle for existence or the gloom of a depressing environment. Others keep it to a ripe, green age; others, like Peter Pan, never grow up. The individual with hypertension, you will find, on the other hand, lacks these attributes wholly or in a large measure, and is, mentally and physically, prematurely old. To my mind it is the psychical as much as the physical that brings on premature old age. A well-balanced life requires play as well as work, an alkali, if you may so put it, to neutralize the corroding acid of the 'fret and fever' of our lives."

SYMPTOMS

The early symptoms are lacking unless we can describe an increased capacity for work and an increasing waist line as symptoms. Given an individual of the type described above, as he nears fifty, his desire to work and his capacity to work increase. He is ill at ease when not mentally employed; meanwhile headaches become common and he suffers from an occasional insomnia. None of his symptoms are sufficiently disagreeable to cause him to consult a physician until the evidence of his hypertension is found in a routine examination, an insurance examination, or when some oculist examines his retinae with an ophthalmoscope. Then it is found that his systolic pressure is above 170 mm., his diastolic pressure is about 110 mm. His retinal arteries are full and impinge upon the veins. He may or may not have a few casts or a trace of albumin in the urine. He may or may not have an increased breadth to the transverse diameter of his heart or his aorta. Among my own cases, twelve per cent showed definite evidence of kidney involvement in their beginning hypertension. However, no larger percentage of these died from uremia than of those in whom these findings develop late in the disease. Twenty-two per cent of my cases showed some increase in the transverse diameter of the heart at the beginning of their hypertension and only a slightly larger percentage of these died from coronary occlusion and congestive heart failure than of those in whom this cardiac finding was observed late in the disease.

As this individual is at the height of his productivity, it is not deemed advisable to take him from work. His diet is restricted, his salt intake is limited, and his elimination is promoted. For a time he improves. Systolie pressure drops, but his diastolic remains more stubborn. Shortly, however, both begin to rise again until a fairly high degree of tension, 180 mm. systolic over 120 mm. diastolic, is reached. Here, some compensatory mechanism is built up, and then he has a long period of seeming arrestment of his disease. His heart, however, gradually enlarges and his arteries become thickened and leathery. It is probable that, during this period of the arrest of the climb of his arterial tension, the degeneration and narrowing of the arterioles take place, and it is this increasing peripheral resistance that is the factor that eventually overcomes the unknown mechanism that I have mentioned. The systolic blood pressure climbs to well over 200 mm. and the diastolic rises to 140 mm. or over. The heart further enlarges. The aorta dilates. The kidneys show urinary evidence of damage, especially in their ability to concentrate the urine at night, although their function otherwise may seef only slightly imapired. The patient, now, is restless. He is full of energy, rises early in the morning and is eager for work. On physical exertion he notices a substernal sensation of constriction or actual aching pain. This may set a definite limit to his physical activities but usually does not end in an anginal attack. He is subject to a sense of fullness in his head, or his head aches. He is dizzy and complains of a ringing in his ears. Not only are his arteries thickened and full, but on venesection it is often noted that the veins have become markedly thick-

ened and the venous blood is held under considerable pressure. During this phase of his sickness, there develops in the patient a distinct mental change. He becomes irritable. He is suspicious of his business associates and sometimes of members of his family. His judgment pertaining to his business affairs usually remains unimpaired. However, his moral tone may degenerate. For many years, I have been interested in clipping newspaper descriptions of scandalous episodes involving well-known men over fifty-five years of age. I then watch for their obituaries, which I clip and pin to the original clipping. The difference in time will average about two and one-half years, and the description of the character of death leads one to believe that it is the termination of hypertensive disease.

Death in hypertensive disease may be vascular from cerebral hemorrhage; cardiac, with sudden death in coronary occlusion, or the more prolonged death from congestive heart failure; or, what in my experience has been more common, the development of uremia and a death in coma. I have seen patients die in uremic coma who a week before death showed no evidence of a retension of non-protein nitrogen, dye retention, or retinal hemorrhage, to indicate a failing kidney.

TREATMENT

The most sure method of bringing about relief from the symptoms of the disease, is rest. Rest is the best test of vascular function in hypertension. If the blood pressure falls to nearly normal with several days' rest in bed, if there is no increase in the transverse diameter of the heart, if the kidney's ability to concentrate urine is normal, and there are no albumin or casts in the urine, then I think the outlook for treatment is very favorable. If rest will lower the blood pressure (and let us not forget that, although we have an instrument of precision to measure this symptom, it is only one of the many characteristic of the disease), rest will keep it down. This has been brought home to me in a striking manner in watching the progress of another disease. In the last few years, another evidence of the stress and strain of living has appeared in great frequency in my community, that is the symptom complex which, with accompanying states of profound mental anxiety, is called neurasthenia. The usual tratement for this is prolonged and profound rest—my cases averaging six months in bed. Among their number have been a few patients suffering also from hypertension. I have found that at the end of six months all these patients were much improved in their hypertension, and those who had no enlargement of the heart and no kidney damage before going to bed, lost all evidence of hypertension and remained much improved after their rest period was over. How long this improvement lasted in all hypertensive cases depended upon the amount of activity the individual engaged in when released from bed. As there seems to be a rebound from mental depression to mental exhilaration in recovery from neurasthenia, I was unable to carry out a long period of partial rest following confinement to bed. A few individuals, however, in spite of rather strenuous activity, have remained seemingly well over a period of a few years. I feel that in rest, long continued mental and physical rest, we have our greatest curative factor in hypertension.

Next in importance to rest, is diet—not in character of food but in its amounts. These individuals are large eaters and are usually obese. It is well to limit their intake of food to such an amount as will maintain their weight at something slightly less than the agerage for their height. Among my patients, I find that the consumption of salt is unusually high. This I restrict to a moderate amount.

I have observed no striking results from the administration of drugs. Luminal is useful to allay mental irritation. Coronary dilators are useful when indicated. I have seen no results from the administration of the nitrites. Digitalis will aid a crippled heart to limp a little longer. I do, however, administer calcium with the use of ultraviolet rays or the administration of irradiated ergosterol.

The greatest thing in the treatment is to have clearly in mind the little we know about the disease process. To have also in mind the much we can learn about our patient. If he is seen early in his disease, a long period of rest will improve his condition. During that time we must attempt to change his whole philosophy of living. We must broaden his mental activity; teach him to be patient—that he must always be mentally calm. Teach him to think slowly, speak slowly, act slowly. Build up the musculature of his body by passive exercise and massage during his long period of rest. Make the care of his body a real factor in his life after this period of rest. Teach him that the joy of a fully distended stomach must never be his again, and that any gain in weight is the beginning of a real relapse. Even with all this we will experience many failures, but I feel that you will enable a few conscientious individuals to recover or, rather, keep their disease arrested.

DISCUSSION

DR. R. O. BROWN, Santa Fe: I should like to ask Dr. Stine if he has found diet to be of any value in hypertension. Another item that interests us in the highest parts of New Mexico is the question of the altitude. Some say that a high altitude is not good for this class of patients, while others maintain it makes no difference, that hypertensive cases do just as well on rest, diet or relaxation in a high altitude, as in a low one. One of the difficulties encountered in the highly energetic type of person, who works all the time and cannot be content unless busily employed at something, is to persuade that kind of patient to take the rest treatment so necessary in hypertension.

DR. S. L. BURTON, Albuquerque: I am very glad to have heard Dr. Stine's paper and think it a very excellent one. The treatment of hypertension reminds me of my own condition. For years I was not able to take life insurance on account of low blood pressure. Since having an attack of pernicious anemia, and being put on liver extract, I can now eat everything and my blood pressure has been elevated. I began to use liver extract gradually and now, in two years' time, my blood pressure has increased and the hemoglobin is equal to that of every one.

DR. JAMES VANCE, El Paso, Texas: In surgery, we run across a great many of these hypertensive cases, but my observation has been that farmers and laborers, as a rule, do not have hypertension. I should like to ask Dr. Stine what effect, if any, heavy alcoholic drinking has in this connection. From a surgical point of view, in cases where the blood pressure is over 200, the best method is to give spinal anesthesia. This works very beautifully. I formerly used ether, but spinal is much more satisfactory in every way, these cases doing remarkably well under it.

DR. STINE (closing): In answer to Dr. Brown, I find a salt-free diet to be very beneficial. In a well developed case of hypertension, the most we can hope for is from rest. As to altitude, I do not know anything about its effects. I do not think that overwork has so very much to do with this condition. The individual who takes his work lightly and leisurely and yet turns out an enormous amount of it, comes out all right. The tense, high-strung individual who takes his work home with him, is the one who suffers most.

In reply to Dr. Vance, farmers in my state have been under a severe mental strain the last few years. I do see hypertension among the farmers, but it is usually among those who have a very good lot of land and who do very little work on it themselves, so have a lot of time to worry. They have quit milking cows and doing the chores, and have developed mental stress and hypertension. Of course, arteriosclerosis is common among laborers, but that is a different thing from hypertension. Alcoholics have low blood pressure and I do not think alcohol is a factor in hypertension. Tobacco I am doubtful about, but believe it is innocent, and while alcohol seems to spare the arteries it produces damage to other parts of the body.

TRICHINOSIS

(Report on a Series of Cases)

J. A. RAWLINGS, M.D.,
CHESTER AWE, M.D., and
J. MOTT RAWLINGS, M.D.,
El Paso, Texas.

Dr. J. A. Rawlings

I wish to present an interesting series of cases that occurred in my practice and in that of three of our colleagues.

On February first, a family of six children, ranging from a young adult to a child of six, fell ill with similar symptoms, varying only in degree. They began with fever, aching in the back of the head, soreness of muscles and edema of the face and eyelids. There were no respiratory symptoms of any kind; the chief symptom being the edema of the face, the temperature from 101° to 104°, and the pulse being 15 to 30 beats higher than normal.

There were different degrees of severity, the boy of ten being the sickest of the number. This boy had an urticarial spot on his chest four or five inches in diameter, and had had other areas of urticaria as well. These, with the other symptoms, led me to believe that I might be dealing with food allergy. So, in seeking a solution to the trouble, I called Dr. Chester D. Awe and Dr. J. Mott Rawlings in consultation. Dr. Awe will give you the blood findings, skin tests, differential diagnosis and further discussions of this condition. It was through the blood findings that we were finally enabled to make a proper diagnosis.

Dr. Haffner had a young adult with similar symptoms. Dr. Arguelles had two young adults and an elderly man similarly affected. Dr. Rodarte had a man of middle age, suffering with the same complaint, making a total of twelve cases altogether.

Urinary findings were negative in all but two of my six cases. One of these had slight nephritis and the other had a severe type, showing a great many casts and double plus albumin.

Several of these patitents developed a great deal of muscular tenderness, especially the boy of ten, whose abdomen was hard and board-like and whose whole muscular system was tense and hard. All of them had coated tongues and some of them had slightly injected throats. These children continued to be quite uncomfortable for about ten days and then their symptoms gradually subsided, so that at the end of two weeks they were practically well, except the boy of ten who was convalescing rapidly. The symptoms as shown by these children were not the classical ones, for most authors men-

tion bronchitis, vomiting and diarrhea, as fairly constant and prominent.

Our first blood examination of these children did not show any increase of eosinophiles, but did show a pronounced leukocytosis; consequently, we were not aided in the diagnosis by this first examination. Later, however, the blood findings uniformly showed a large increase of eosinophiles and this enabled us to make a diagnosis which was later corroborated by the finding of worms in the muscle of one of these patients.

Discussion by Chester Awe, M. D.

The essential features in this series of cases have been presented by Dr. Rawlings. There are, however, several points that should be emphasized in a discussion of the diagnosis. First, there was an absence of gastro-intestinal symptoms, nausea, vomiting, and tympanites, which usually accompany invasion of the intestinal tract by trichinae. These symptoms, when present, are due to toxins liberated by adult worms and tissue reaction to them. Second, members of the family persistently denied having recently eaten pork or ground meat, or meat obtained from any other source than their corner grocery, which handled government inspected meats. Only after a definite diagnosis had been made, could they recall having eaten hamburger about two weeks prior to illness. Third, the first blood counts showed a normal differential picture which temporarily confused us.

The earliest objective symptom in all cases was marked edema of the upper face, eyeballs and conjunctive. In two patients there was involvement of the temporo-mandibular joints, with tenderness and effusion. No other joints were affected.

Shortly after the edema became pronounced, two of the boys were sent to their family physician, who made a diagnosis of acute nephritis and prescribed bed rest and dietary measures. When the other members of the family became ill within forty-eight hours with similar symptoms, it became apparent that some condition other than nephritis was responsible.

Dr. Rawlings was called and suggested the probability of food allergy. Skin tests were done on two occasions, using all foods recently eaten by the family; these were negative. Blood counts were then repeated by Dr. J. Mott Rawlings, Mr. Wolfe and myself. These showed a leukocytosis with a high eosinophile count, and, in our opinion, made the diagnosis of trichinosis complete, because we know of no other condition in which so high an eosinophile count is present. The fever was of the type usually seen in trichinosis; muscle tenderness began on about the tenth day of illness and in two patients was a prominent symptom. The muscles of the arms, legs and abdomen were sensitive to palpation. The external muscles of the eye were involved in one patient, causing limitation of movement of the eyeball. The symptoms of chilliness and sweating, usually present in trichinosis, were absent in these cases.

Three cases seen by other doctors were examined by Dr. Rawlings and myself and differential blood counts were made; these showed an eosinophile count of about 40 per cent and their symptoms were practically identical with those of the cases given above.

Differential blood counts were again made on February 21 at which time the patients were practically recovered from their symptoms, although muscle soreness persisted in the eldest boy for about two weeks after this date. The duration of illness in all cases was about one month and there were no demonstrable complications.

Several writers have mentioned the rarity of trichinosis in Spanish-American peoples, due to their habit of thoroughly cooking meat. All of the cases seen by us were Spanish-Americans. The fact that these cases were found in various sections of El Paso led us to believe that there were probably quite a few more unrecognized cases present at the same time. The mortality is usually given as about 5 per cent, but varies greatly, depending on the number of larvae consumed by the individual. We were unable to discover the source of infection, but it seems likely that it was due to chopped or ground meat, as all patients give a history of having eaten this kind of meat shortly before illness.

The blood counts, which are interesting from the high eosinophile count, follow:

BLOOD COUNT
W. B. C.

Alfonso	15,900
Victor	12,600
Lupe	10,400
Teresita	13,200
Adolfo	14,700
Miguelito	34,000

LUPE

2/9/31.		2/21/31.
Esinophiles	64%	42%
Polys	18%	32%
Small Monos	14%	23%
Large Monos	4%	3%

MIGUELITO

2/9/31.		2/21/31.
Esoinophiles	63%	41%
Polys	27%	35%
Small Monos	8%	20%
Large Monos	2%	4%

ALFONSO

2/9/31.		2/21/31.
Eosinophiles	49%	49%

Polys	36%	28%
Small Monos	13%	19%
Large Monos	8%	4%

TERECITA

2/9/31.		2/21/31.
Eosinophiles	57%	37%

SIX—OLD—SW MED

Polys	32%	19%
Small Monos	5%	43%
Large Monos	4%	1%

ADOLFO

2/9/31.		2/21/31.
Eosinophiles	48%	13%
Polys	32%	36%
Small Monos	8%	45%
Large Monos	12%	6%

VICTOR

2/9/31.		2/21/31.
Eosinophiles	31%	27%
Polys	59%	56%
Small Monos	7%	14%
Large Monos	2%	3%

J. Mott Rawlings, M.D.

PATHOLOGY OF TRICHINOSIS

The Trichina, or as it is now called, Trichinella spiralis, was discovered by Owen, and has since been studied by numerous others, especially Virchow, Zenker and Staubli.

The Trichina is a round worm carrying out a complete life cycle in one animal, but needing transference to the intestinal tract of another animal for the development of a new cycle.

The usual story is as follows: The worm is essentially a parasite of swine, but can live in rats, mice, guinea pigs, rabbits, dogs, cats and many other animals, as well as man. Pigs are often infected from eating dead rats and man from eating insufficiently cooked pork. The embryos, both male and female, are found in the muscle substance of the pig, encysted, and when they are in contact with the acid juices of the stomach the cyst is eaten away and the embryo freed. It then develops into mature form, conjugation occurs, maturation follows, and the female, penetrating the central lymphatic bore of an intestinal villus, hatches its eggs in its uterus and the embryos, free swimming, leave the genital pore, enter the lymphatics of the host and are there swept into the blood stream, from which they choose the voluntary muscles as their abode and again encyst themselves. During the stage in which they are in the blood stream, they may be found by dissolving the blood away with 3 per cent acetic acid and examining under the microscope. They are often abundant in the peritoneal cavity, but do not develop there.

After entering the muscle, each one penetrates a muscle fiber and grows, the fiber losing its striations, the embryo showing an intestinal tract. After this it lays down a thick hyaline capsule about itself. The origin of the capsule is disputed, but it would seem to arise from the worm itsef. The worms may live years in the muscle, until such time as the capsule becomes calcified.

The disease is often a fatal one and ends fatally when much of the meat is consumed. An extraordinary eosinophile increase in the blood leukocytic differential count is almost diagnostic, if taken in conjunction with swollen areas of the face and tender, painful muscles. Fever, sweats, malaise and, occasionally, diarrhea occur.

The acute course of the disease is from three to fourteen days. Postmortem examinations show swelling of the intestinal mucosa, lymph node enlargement, and skeletal muscle changes. Bone-marrow is rich in eosinophile myelocytes. The parasites are visible to the naked eye only after calcification. Neck muscles, diaphragm, and tendinous insertions, are favorable sites of location.

In this particular case a portion of muscle was excised from the tendinous insertion of the right biceps of one of the patients. Frozen section was made, stained with hematoxin-eosin, and was studied. This showed the typical Trichina parasites in large numbers.

PROCTOLOGIC ODDS AND ENDS

CURTICE ROSSER, M.D., F.A.C.S.
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(Read before the State Medical Society of New Mexico, Albuquerque, May 1931. From the Section on Proctology, Baylor Univ. Dept. of Medicine, Dallas.)

The philosopher who suggested that our thoughts should concern the good, the beautiful and the true did not have in mind the question of rectal pathology. Nevertheless, it is a matter of general knowledge that the patient who suffers from disease in this vicinity is characteristically unable to keep his thoughts upon that high and amiable plane.

Proctology, a field so long abandoned to the quack and the irregular, has in recent years been to a large measure reclaimed to orthodox medicine through increasing realization of its import in the general medical scheme, by the evolution of undergraduate instruction in ano-rectal diseases, and from a definite demand on the part of practitioners that disorders so wide-spread in their clientele shall have the benefit of careful scientific consideration in the place of the alluring promises of the charlatan with his amiable newspaper photograph underlined, 'no pain, no chloroform, no knife."

Not the lest benefit to the patient from this novel renaissance as an orthodox specialty of an outcast phase of medicine, has been the discovery that there is no inflex-

ible rule insisting that treatment by a reputable practitioner must consist of major surgery, only.

Dr. E. H. Terrell of Richmond, for example, originated some years ago an office treatment for internal hemorrhoids consisting of the injection of different solutions of quinine urea hydrochloride in the varicosities, which is apparently safe, and which has been found curative in early cases, and distinctly palliative in advanced hemorrhoids.

Dr. A. B. Graham, of Indianapolis, in 1926 suggested a most effective and simple treatment for anal fissure—the introduction of a few drops of the same chemical behind the ulcer. While it is requisite to add to this step the excision of the sentinel pile, if it is large enough to block drainage, and while excision of the ulcer itself may be unavoidable where extensive infection and scarring are present, the Graham technic has proved in my hands most satisfactory.

If I may add another example of surgery-avoiding office procedures, I have been using with uniform success for the past four years intravenous injections of mercurochrome for that most painful and difficult lesion, anal chancroid. The technic suggested, after autoinoculation and smear from the vaccination lesion has verified the diagnosis, consists of intravenous injection of increasing amounts of one per cent mercurochrome, beginning with three cubic centimeters. The characteristic pain is relieved by the first treatment, and three to five injections, made at 48-hour intervals, clears up the pathology.

But while I welcome, and you will, any safe, logical and proved addition to the armamentarium of proctologic treatment, the wisdom of appropriating the chief working tool of the itinerant, the syringe of phenol in oil, without proper scientific examination and estimation of final results, is surely open to question. While the use of this chemical is venerable from the standpoint of age, it has no other claim to special favor in the hands of the modern orthodox proctologist, since its users have been in the past chiefly those whose only concern was quick and easy financial returns. My own interest in this question has been stimulated through the detection of innumerable rigid rectums following the use of carbolic-oil rectal injections, in addition to the fact that in my series of strictures 12 per cent of all those sufficiently advanced to require the use of corbolic oil rectal injections, in addimy series of strictures, 12 per cent of all those sufficiently advanced to require proctotomy have been from this cause. I have elsewhere (Journal of the A. M. A.) reported reasons for believing that these chemical strictures are the results of the formation of eleomata from the incarceration and retention of the oil injected under the rectal mucosa.

This type of stricture offers tremendous difficulties therapeutically, as does the common rectal stenosis resulting from the obliterating proctitis of a mixed infection based on Neisserian rectal infection.

There is no known method of restoring the rectum to its normal configuration in either of these stenoses, and in marked obstructions colostomy may be necessary; but the best palliative procedure in my own hands has been the use of dilatation-diathermy, made possible by a special set of electrodes after the original suggestion of A. J. Murietta of Los Angeles.

Perhaps the most effective aid in divorcing the present-day patient from the quack where surgical measures are essential, as in fistulae, in advanced cases of fissure and hemorrhoids, in cancer, and so forth, has been the perfection of infiltration and block anesthesia as it applies to operative surgery of this region.

Minor anal lesions may be corrected after block of the inferior hemorrhoidal nerve filaments by peri-anal infiltration with nupercaine, and more extensive procedures may be accomplished under a low spinal. A special spinal technic, useful in rectal work, may be of interest. With the idea of limiting the anesthesia to the zone involved and reducing the possible decline in blood pressure, the patient is given only 25 milligrams of novocaine mixed with spinal fluid, in the sitting position. The resulting anesthesia is exactly that obtained by the caudal block formerly used, and in the fifty minutes available, practically any necessary work may be done. No federin is needed unless the initial blood pressure is 100 mm. or lower.

Block anesthesia has been found extremely helpful in the extraction of large foreign bodies impacted in the rectosigmoid. Among my own cases a sauce bottle and an electric light globe were easily removed without severing the sphincters, removing the coccyx, or laparotomy procedures—reported by various observers as necessary in similar emergencies—by means of the very complete relaxation afforded by caudal or spinal anesthesia. Smaller objects such as beef bones, enema tips, thermometers, to select three examples from my own experience, are best removed through the proctoscope.

One is tempted to suggest that the most radical recent changes in the handling of

rectal cases are based on three premises now generally conceded. The first is that a patient whose symptoms suggest a rectal lesion is entitled to an examination of the organ by palpation and inspection, externally and internally. The second is that the cautery is not compulsory in rectal surgery. The third novel premise is that a postoperative rectal wound should be occasionally freed from debris, dried, and dressed, as if it were a surgical wound elsewhere in the body. On these three grounds alone this region demands admission to modern surgery.

A CASE OF TULAREMIA

JOHN L. MURPHY, M.D.
El Paso, Texas.

(Presented before the Staff Meeting of the Hotel Dieu, El Paso, Texas).

Mr. T., age 41, is a butcher at the Fort Bliss Commissary. He was transferred to us by a local physician on Jan. 16, 1931, because of a lump on his right arm and in the right axilla. The present illness dated back to Dec. 14, 1930, or four weeks before we saw him, at which time he noticed a generalized malaise and was having night sweats. The latter were followed by chilly sensations. He also complained of a generalized aching of the larger joints and back. There was marked anorexia. Two days later he noticed a small tender lump in the region of the epitrochlear lymph node which has gradually increased to its present size. Ten days later a similar lump was noticed in the corresponding axilla. He states that the only thing he could compare his illness to was an attack of grip, though he did not have any upper respiratory infection with the present illness. In spite of the fact that he felt badly, he continued his work for ten days before consulting the family physician, who made a diagnosis of intestinal influenza and instituted treatment. During this time the patient was confined to his home but not strictly to bed. He had lost about eight pounds of weight. After two or more weeks, since his condition did not improve, he consulted another physician, who told him he had an abscess on his arm which needed opening and advised coming to see us.

We first saw Mr. T. January 16, 1931. He is naturally a dark man, but his complexion at that time was especially ruddy and he appeared depressed, but not greatly emaciated. His temperature was 99.2, pulse 100, and respiration 18. Examination of his right arm revealed a tumor mass about one-half tangerine size. The skin over it was erythematous but intact. At its center, fluctuation was in evidence over an area about the size of a quarter, and the remainder of the tumor was markedly indurated. There was no sore of any nature on the corresponding hand, fingers or forearm; furthermore, he denied there ever having been, with his present illness. There were no red streaks as evidence of lymphangitis, and no tenderness of the arm except at the site of the tumor. Examination of the axilla revealed another tumor mass about hickory-nut size. There was no erythema over this. The tumor was slightly tender and painful on motion of the arm. It did not present fluctuation but instead, felt rather firm and to be composed of two or three different masses closely matted together.

Upon further questioning, Mr. T. admitted handling rabbits at the Commissary, and on many occasions he has with both hands broken the breasts of the rabbits open, thereby sticking the broken ends of the tiny ribs in his fingers and palms of his hands. He denied, however, that any of these pricks ever resulted in small sores or ulcers. With the history and findings as above, we suspected tularemia. We advised incision and drainage of the abscess on the arm and hot boric dressings both to the abscess and the axilla. The lump in the axilla was not fluctuant and we believed it would subside if the abscess in the arm was drained. The abscess was incised and about an ounce of thick creamy pus was released. Some of this was taken for guinea-pig inoculation. Blood was also taken for study. The Kahn test was negative, as was the agglutination for undulant fever. There was a partial agglutination with a known culture of B. tularensis in a dilution of 1 to 320, and a complete agglutination in a dilution of 1 to 160. Francis, Simpson, et al, have never found agglutinations present in the blood during the first week of the disease. Francis states, if, at the end of ten to fourteen days, there is agglutination of 1 to 10 or 1 to 20, it is suspicions and in another week the agglutination should be rechecked. If the titer has increased to 1 to 40 or 1 to 80, the diagnosis is certain.

A guinea-pig was inoculated intraperitoneally with .5 c.c. of pus mixed with saline. It did not show any signs of illness by the tenth day, when a postmortem was done. The liver and spleen were found entirely normal. This is in accord with the observations of others on tularemia, and did not change our diagnosis.

In Dr. Brown's previously reported case, which was the first case reported in the State of Texas (J.A.M.A. 84: 1243, Apr. 25, 1925) two guinea-pigs were inoculated intraperitoneally, one by material swabbed from the ulcer and the other by scrapings from the ulcer. Both guinea-pigs died on the fourth day within a few hours of each other. The postmortem revealed typical miliary necrotic foci of both the liver and spleen. Still two other guinea-pigs were inoculated with pus from a suppurating regional lymph nooe and neither animal died or became sick. They were not autopsied.

In my case, which was the fifth reported in the State of Michigan (J.M.S.N.S., December, 1930), pus from the gland was cultured on cystine-blood agar, and a scanty growth was obtained. Colonies from the plate were suspended in saline for guinea-pig inoculation. This resulted in death on the sixth day, and autopsy showed typical lesions characteristic of tularemia. Since we did not have the proper culture medium at hand for study of the present case, the organism was not isolated. This is not necessary, since a positive agglutination is conclusive.

On the second day after opening the abscess, the patient's temperature had fallen to normal and the patient states he felt stronger and better generally. The abscess was only slightly sore, but the lump in the axilla remained about the same size and rather tender. A swinging motion of the arm at the shoulder was very painful. One week later, the induration around the abscess had subsided and the wound healed over in another three days, while the lump in the axilla was persistent in spite of continuous hot applications. We watched the axilla closely for fluctuation, which did not appear, consequently we did not incise it.

It is now four weeks since we first saw the patient. The lump in the axilla is about half the original size still firm and moderately tender. The patient has returned to his business as a butcher, but finds that in using the saw for cutting meat there is still some discomfort. His appetite and strength have only partially returned. He is gradually getting back to his normal weight. Weakness is the most common sequel of tularemia.

SUMMARY

A butcher, aged 41 years, becomes ill with a generalized malaise, sweats, attacks of chilliness, and generalized joint and back pains. His family physician makes a diagnosis of intestinal influenza, but after two weeks his condition does not improve under treatment for this. Another physician is consulted and the patient is referred to us because of an abscess on his arm.

Examination reveals an abscessed epitrochlear gland on the right arm and a small lump in the corresponding axilla. The patient's temperature was 99.2. Forty-eight hours after the abscess was opened he felt better and now, four weeks later, the abscess has healed and the tumor in the axilla is gradually subsiding. Agglutination test on the blood with B tularensis at the time of his first visit (four weeks after onset of P.I.) was partial in a dilution of 1 to 320 aand complete at 1 to 160. A guinea-pig inoculation with pus taken from the abscess did not develop the disease. This, then, is a case of glandular tularemia.

We feel sure the portal of entry was a stab wound by sharp broken ends of the rib of an infected rabbit, but there was no history or evidence by examination to substantiate this belief.

We are indebted to Mr. Wolfe, of Dr. Willis W. Waite's laboratory, for the special serological work done in this case. The diagnosis of tularemia was made in three hours after the patient came to our office.

Follow-up (March 11, 1931); Mr. T. resumed his duties as a butcher soon after his last visit to the office i. e., about Feb. 1. He complained only of some soreness persisting in the right axilla. On Feb. 27, he returned to the office stating he was feeling bad and that the lump in the axilla was getting larger. His temperature was 97°. Examination at this timereveale da tangerine-sized fluctuant mass in the right axilla. Under local anesthesia an incision vertical to the axilla was made and about two ounces of thick creamy pus was released. The abscess was well packed with gauze to insure healing from the bottom. It is two weeks since the abscess was incised. It is nearly healed, and Mr. T. states that, for the first time since he contracted the disease, which was in December, he has felt himself again.

ORAL DIAGNOSIS

With Especial Attention to the Devital X-ray Negative Tooth

LUTHER ALTON NEIL, D. D. S.
El Paso, Texas

(Read before the El Paso County Medical Society, at regular meeting in February, 1931).

Back in 1801, Dr. Benjamin Rush, one of the signers of the Declaration of Independence, reported a case of rheumatism, a case of dyspepsia, and a case of erysipelas, cured by the extraction of teeth.

A great debt of gratitude do we owe such men as Rosenow, Billings and Mayo, working in cooperation with dentists and by animal experimentation, for demonstrating how the eradication of oral foci can relieve many serious systemic involvements[1].

Only last September, Dr. Mayo was quoted as stating that 61 per cent of the cases in the Mayo Clinic came as a result of oral infection. At the age of twenty-five, one-fourth of us have septic mouths, at forty-five the number has increased to 90 per cent, and after fifty, practically all mouths are septic[2].

In view of these facts, and in justice to those over whose health we are guardians, the mouth should logically be the first avenue of search. For this search the services and close cooperation of a competent and unbiased dental diagnostican is most essential, that the physician may complete his diagnosis and determine the method of procedure and treatment.

There is a great error, on the part of many physicians, in the popular belief that a dental diagnosis is so simple that almost any one can perform this simple service. The physician's having province over such a vast field is, no doubt, a strong influence in the belief that at least almost any dentist should know the small area for which he is responsible. "Are we cognizant that such understanding implies that the dentist is at once a healer, surgeon and an artisan? Admittedly too great a scope for the average practitioner to pursue[3]." To know the status of thirty-two teeth, or thereabout, the osseous supporting structures, forty to fifty inches of gum tissue, the relation between focal infection and systemic disease as well as a systemic defense, requires skill, time, patience, and a full realization of one's responsibility.

Another serious and erroneous idea prevalent among physicians, dentists, and laymen, is that a set of x-rays, or tooth pictures, constitutes a mouth diagnosis. Oral diagnosis by x-rays alone is impossible, even in the hands of the most skilled dental diagnostician. There may be several successful treatments for a disease, but there is only one diagnosis, the correct one.

Physicians have often been disappointed because their patients show no improvement after dental treatment, when the patient, possibly, failed to improve for the reason that the mouth condition was not a factor, or, because of careless and indifferent mouth diagnosis, or treatment, or both, the infection was only partly eradicated. And this disappointment is felt more keenly by both physician and patient when the teeth have been slaughtered by the wholesale.

Infected teeth should be located and either freed of the infection or removed, but promise improvement in a chronic disease is to court disaster and discredit the benefits to be derived from early eradication of oral foci of infection. Dr. Bumpus, of the Mayo Clinic, says, "Too many septic teeth are removed after the heart begins to beat irregularly, after the urine contains albumin

or pus or after the joints have become deformed[5]."

As further evidence against oral diagnosis being an easy matter, permit me to remind you that, under the heading of "stomatitis" may be included all of the inflammations of the mucous membrane of the mouth—eighty-two in all[6]. Twenty-one are in the local group. Sixty-one is the number of local manifestation of systemic diseases constitutional disorders and drugs, this being exclusive of the long list of tumors. And, as you know, the x-ray registers not a single one of these conditions.

In the deeper or bony structure of the mouth, and of the chronic type, there are four causes of pathology. The first and most prevalent is periclasia (pyorrhea). That this disease usually causes but little discomfort and is difficult for the average practitioner to handle successfully, is responsible for a diagnosis delayed until it has reached a stage comparable with cavitation in tuberculosis.

At this stage the patient usually loses his teeth and has probably lost his health. This forty to fifty inches of gum tissue, from two to several millimeters in depth, furnishes quite an area for bacterial growth—many times that of the tonsils. Many of my patients have been relieved of rheumatism, neuritis, stomach disorders, and so forth, by the treatment of even incipient pyorrhea. Of the four causes of chronic oral foci of infection, pyorrhea, in my opinion and in the opinion of practically all authorities, is the only one that can be successfully treated. But, due to the fact that extraction is the popular method of eradicating mouth infection, the savable pyorrhea tooth is, indeed, too often the victim of the forceps.

The impacted or unerupted tooth carrying the short chain streptococcus, constitutes the second cause of chronic mouth pathology. These teeth often exert pressure upon the main trunk nerves, affecting the central nervous system. A great many chronic antrums have their origin from impacted third molars and devital teeth[7].

Residual areas we will class as the third pathological cause, such as pieces of root, cysts, granulomas, and necrosis. Boyd Gardner, of the Mayo Clinic, finds that 33 per cent of the edentulous mouths carry areas of infection[8], suggesting strongly the advisability of checking these edentulous mouths with the x-rays.

The devital, or pulpless, tooth occupies a prominent fourth place in this list of chronic foci of infection. In this classification is the x-ray positive tooth and the x-ray negative tooth. The x-ray positive tooth shows by the radiogram a rarefied area in the apical region. Practically all authorities in both our professions agree that this tooth is infected and should be removed. I should like to say, however, that not all teeth with the rarefied apical area are devital. They may be in occlusal trauma and need periodontal treatment instead of extraction. But what about the proverbial and much discussed x-ray negative tooth without the black spot in the apical area? Let us not forget that the x-ray has limitations and that this tooth may be possessed of granuloma or cyst which may be hidden behind a root, a mass of bone such as the malar, or a layer of condensing osteitis, and not shown in the radiogram[9]. Weston Price[10] says we have the good healthy individual capable of throwing up a defense around an infected tooth root as manifested radiographically by a rarefied area, and also the patient with low defense who cannot wall off the infection, permitting bacteria and toxins easy access to the blood stream. This is the x-ray negative tooth.

Haden[11] cultured six hundred x-ray positive teeth and found 62.8 per cent had ten or more colonies, as compared to 46.2 per cent of the x-ray negative teeth. The predominating organisms found in and around infected devital tooth roots are the streptococci and diplococci, mostly green-producing or viridans, the same that are found in the heart, kidney, joint, muscle and nerve lesions[12]. Degenerative diseases suffered by human beings have been produced in animals by cultures from x-ray negative teeth.

This is convincing evidence that the x-ray negative tooth might be an even greater health hazard than is the x-ray positive tooth. And this is the light in which practically all authorities see it today, they believe when dealing with health problems and theorizing upon whether or not to remove a non-vital, x-ray negative tooth, that it is always safer to give the patient, not the tooth, the benefit of the doubt. Is this not in line with the removal of the tonsils when the patient is suffering from disease thought to be focal in origin, even though no fluid pus can be expressed from the crypts?

When a physician refers a patient to a dentist, he wants dependable information regarding the mouth condition and the possibility of its being a factor in the patient's physical debility. In order to furnish this information, there should be a complete radiographic examination, consisting of fourteen to twenty films correctly exposed, developed, and mounted, in order that they

may be studied for root canal fillings, apical bone changes, alveolar crest absorption, thickened membrane, pulp nodules, overhanging crowns and fillings, caries, impacted, unerupted and supernumerary teeth, roots, residual areas and pyorrhea pockets. All teeth not shown by the x-ray to be devital should be given the vitality test. In my opinion, the electric pulp tester is almost as valuable in mouth diagnosis as the x-ray. Next, in a clinical examination we note condition of soft tissues, abnormal growths, depth of pyorrhea pockets, mobility, labial and lingual bone absorption that does not register on the radiogram, pus exudate, as well as tooth brush habits. Due to the prevalence of Vincent's infection and its rapid onset, all suspicious cases should be at once put on anti-Vincent's treatment or be given a mycroscopic examination. Case history, both past and present, oral and systemic, should be properly recorded, with the other findings. I have found blood pressure and hemoglobin can be used as a guide by the dentist in determing advisability of medical consultation. Low blood pressure is long existing chronic foci of infection is the rule, and it can also be used by the physician as a guide in calling upon the dentist for oral examination[13].

Having available all this data, a reliable diagnosis, prognosis, and treatment should be correctly determined.

Concluding, we should like to urge closer cooperation between dentists and physicians, that we may take advantage of the opportunity offered today to prevent and eliminate suffering and by so doing prove worthy of the confidence imposed in us.

REFERENCES

1. Bumpus, H. C., Jr.: Results Obtainable by the Cooperation of Dentists and Physicians, Dental Cosmos, Nov., 1922.

2. Cited in The Relationship of Physician and Dentist, by Alfred Owen, Dental Survey, Feb. 1931.

3. Bumpus: in Dental Cosmos, Nov. 1922.

4. Machat, B. B.: Oral Diagnosis, Dental Cosmos, May 1929.

5. Bumpus, H. C., Jr.: in Dental Cosmos, Nov. 1922.

6. Mead, Sterling: Diseases of the Mouth.

7. Chandler, Frank: Oral Foci and Their Eradication, Oral Hygiene, Feb. 1926.

8. Gardner, Boyd, Personal interview.

8, 10, 12. Price, Weston: Dental Infections, Oral and Systemic. Dental Infection and the Degenerative Diseases.

11. Haden, Russell: American Dental Journal, Oct. 1926.

13. Machat, B. B.: Oral Diagnosis, Dental Cosmos, May 1929.

OPEN REDUCTION IN THE TREATMENT OF FRACTURES, SELECTION OF CASES, TYPES AND METHODS

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(Before the Regional Conference of the Arizona Subcommittee of the Committee on Fractures, of the American College of Surgeons, held at Prescott July 11, 1931).

In attempting to discuss the subject given me, we shall be able to touch only some of the outstanding points.

Dr. Scudder, Chairman of the American College of Surgeons' committee on the treatment of fractures states: "Today, operative treatment of fractures has come to a point where, in certain hands and for certain cases, it is the best treatment and, in many instances, it is the first treatment of choice." He also states that the general feeling is that you can handle fractures when you have time. This is bad judgment, for every fracture is an emergency. Several of the men here have had the profitable pleasure of taking Dr. Scudder's course on fractures. Two years ago, when some of us were there, we noted from their statistics on the series of cases presented that 20 per cent of simple fractures were operated upon. Dr. Sherman of Pittsburg, with his excellent technic and team work in his clinic, operates a large percentage of all his fractures. Dr. Lambert, father of operative treatment for fractures, never uses skin traction because the skin may become excoriated and be unsafe for surgery. Dr. Lafferty of Detroit, opens, reduces the fracture, sutures the fascia, places in plaster, but does not place any internal fixation. All of them, with perfection in their individual technic, get good results.

Aside from the stimulus of Dr. Scudder's statement, there are certain indications for open reductions. It is a known fact that the more perfect the anatomical result attained, the more perfect will be the functional result. However, by avoiding shortening, angulation, and rotation, the functional results should be good, providing the proper care of early joint motion is given.

There are certain indications for open reductions where it is impossible by other methods to get a perfect functional result:

(1) Fractures that are impossible to reduce properly by any of the closed methods. Some adherents to the closed method will say there are none; however, there are cases where muscle is interposed between the fragments and again more cases where intact periosteum lies between the fragments. In

these latter cases, the outer nonosteoblastic surface of the periosteum is in contact with one fragment, and you not only can not properly reduce, but you will not get union.

(2) Cases in which the fracture can be reduced, but it is impossible to hold it reduced. This is true in certain oblique fractures and oblique fractures with loose fragment. With some authorities, in oblique fracture of both bones of lower extremity, open reduction is immediately advised.

(3) Cases of non-union or delayed union. This is due, possibly, to a deficiency of calcium or intact periosteum. An over extension of the distal fragment, permitting daylight between the fragments for some time, is another cause for non-union. This is especially true in transverse fractures of middle third of the humerus.

(4) Fractures of one bone of the forearm with overriding of the fragments is, in most cases, impossible to reduce and must be operated.

(5) Supracondylar fractures of the humerus with marked swelling caused by intrinsic pressure from bleeding, is an indication for open reduction. These cases in which there is marked tension, even without interference of the radial pulse, may become complicated with Volkmann's contracture, because, after the fracture is reduced, it is necessary to place the arm in such a position of flexion that the pressure is increased by extrinsic means. This same fracture sometimes presents evidence of nerve injury, especially of the musculospiral. Our authorities advise us that sometimes the nerve recovers and function is restored, and for this finding alone, operation should be delayed.

(6) Transverse fractures of the middle third of the humerus very often result in non-union. A large percentage of these cases must be operated.

(7) Most cases of fracture of upper third of the humerus in children are operated. Fractures of the anatomical neck of the humerus, where the shaft perforates the joint capsule, are in many cases impossible to reduce and open reduction is necessary.

(8) Fracture of the neck off the femur. This usually occurs in old patients. The condition of the patient being the primary factor, there is no hurry to operate.

(9) Fractures of vertebrae with partial cord injury, or where symptoms of pressure on cord comes on after time of injury, should be operated; also, markedly compressed fracture of vertebrae without cord disturbance.

(10) Pathologic fractures following bone cyst with overriding, must be operated.

(11) Compound fractures. We do not mean the ones with very small opening in skin and comparatively little injury to soft tissues, but those with open wound, with bone or bones sticking out or exposed. These cases, when seen within six hours after injury, can be operated and closed without drainage. Do debridement and reduce, fix fragments with some absorbable material such as heavy chromic gut, kangaroo tendon, or fascia lata.

Beyond this, when to operate depends, primarily, upon the condition of the patient and, secondarily, upon the judgment of the surgeon. Fractures present so many different pictures that the surgeon must make his decision with the patient's interest in mind, selecting the procedure that will give the best anatomical, functional, and economic results, with the shortest period of disability.

Dr. Scudder gives several postulates which I will enumerate:

(1) The procedure must be with the highest degree of safety to the patient.

(2) A surgeon and assistants should be skilled in this treatment.

(3) They should have proper instruments and appliances for procedure.

(4) Anesthetist should be skillful.

(5) Pre-operative, operative, and post-operative treatment should be adequate.

(6) Method chosen should be the one indicated in the particular case.

(7) Contiguous joints should be moved as early as possible.

(8) The surgeon is held responsible for only the average in his community. He feels more should be given.

The method used in open reduction depends upon the case. It is true that there may be a choice of methods in some cases, but, where good fixation can be accomplished with absorbable material, it is best to use that.

For transverse fractures of the humerus, a plate is best. For oblique fractures, Parhem or Collins bands will do good work. Fractures near the head (intracapsular) kangaroo tendon will hold; as the shoulder joint can and should be moved by active motion after two weeks and all apparatus removed, with the arm free in a sling, at the end of three weeks. In supracondylar fracture of the humerus, heavy chromic gut or kangaroo tendon is best for fixation.

In ununited fracture of the femur, ends should be freshened and strong firm fixation is necessary; here a Lane plate is needed. In fresh oblique fracture of the femur, Collins bands do excellent work. For fresh

transverse fracture of the femur, use Lane plate. For fractures of the patella, fascia lata or kangaroo tendon passed through drill holes through the bone, suturing the fascia with chromic gut. Some use silver wire for fixation of bony fragments. In oblique fractures of the tibia, use Parham or Collins band. In compound fractures of the tibia, as well as simple transverse fractures of the tibia, use absorbable material, such as kangaroo tendon. For ununited fractures of the tibia, use sliding graft.

For fracture of one bone of the forearm, either only reduce and with great care place in plaster cast, or use absorbable material for fixation, such as heavy chromic gut or fine kangaroo tendon. For fracture of the neck of the femur usually encountered in old patients a three-flanged nail with very thin flanges so the least amount of bone is displaced, is used. This is by no means a simple procedure and should be referred to the specialist. For fractures of the vertebrae where immobilization is indicated, a bone transplant should be done, fixing at least the vertebra above and the one below with the fractured vertebra and, still better, two above the two below.

Bone transplants are also indicated in cases where union has failed with other open methods.

There has been an effort to replace the steel plate with beef-bone plates and screws. The failure of beef-bone screws to stand the strain, snapping off, makes them unreliable.

A very important procedure, whether treating fractures by the open or closed method, is early active motion of contiguous joints. In fracture of the femur or tibia, where firm fixation has been used, such as Lane plate or Collins bands, a plaster cast is not used by such men as Sherman or Scudder, but it is only fixed firmly in a Thomas plint and Balkan frame. Aside from the actual surgery of open reduction, there are a few points that are very important which, thus far, have not been mentioned: first, careful skin preparation; second, sufficient help in surgery; third, careful draping, making provisions for a sterile assistant to give you the traction and rotation necessary. Good work can be done on the ordinary operating table; however, the Hawley fracture table is of great importance.

I tried to recall cases representing these different procedures and have brougt some x-rays to show. In the small series of open reductions that I have done, I have had one infected case. This infection did not occur at the time the Lane plate was put on, but set in twelve weeks after, when I opened and removed the plate. The fracture was of the lower third of the femur and in this case I first placed the patient in ice-tong traction, but he complained so greatly that, at the end of a week, I felt something else would have to be done and decided on open reduction. On removing the Lane plate, he developed an osteomyelitis which cleared up but left him with complete ankylosis of the knee joint. Another unsatisfactory result was a transverse fracture of the femur which was treated in a Thomas splint and caliper traction, but with no union other than fibrous. An open reduction was done, ends of fragments freshened, placed firmly together, and a six-screw Lane plate put on. The wound healed promptly, but again there was a failure in union. He was operated again by some very good friends of mine, who had a similar end result. I feel, and I am sure they do, that this patient had a faulty calcium phosphate metabolism.

I cite you these cases as the bad results, as well as some of the good results I have to show you.

THE NEW MEXICO MEDICAL SOCIETY

(Continued from September Issue)

Dr. M. J. Geyman (Santa Barbara, Cal.) presented a paper on "Roentgen Diagnosis of Gastro-Intestinal Lesions,' with lantern slide illustrations, stating that "since Roentgen's discovery there has been an increasing value in the use of x-rays in diagnostic procedures, which is probably most marked in the roentgen studies of the gastro-intestinal tract." He displayed a number of slides showing the need for close cooperation between the roentgenologist and referring clinician, and presented an abstract of a roentgen study of lesions in cases of gastroduodenal ulcer. He stated, "This study comprises an evaluation of the so-called compression technic, consisting briefly of localized compression over the duodenum or the part of the stomach under examination, under fluoroscopic observation, and the projection of this picture on films. The object is to obtain a detailed study of the duodenum or stomach with just sufficient barium content to coat the mucosal surfaces. As a result of this procedure, lesions are demonstrated more clearly. The most certain and important sign of ulcer, the niche, can be visualized in as high as 50 per cent of cases which present bulb deformities characteristic of ulcer. Also certain superficial mucosal ulcerations and the en face type of niche, can be shown with great detail and certainty, whereas they might justifiably be missed by even a careful roentgen study which did not involve the use of this technic."

Dr. Curtice Rosser (Dallas, Texas) expressed his enjoyment of Dr. Geyman's paper, but offered the suggestion that the proctoscopic examination be made before the oral administration of barium.

Dr. Geyman had nothing to add in the way of discussion, but thanked the Society for the privilege of appearing before it and for the courteous treatment he had been accorded.

Dr. Verne C. Hunt (Los Angeles, Cal.) speaking on "'The Surgical Treatment of Peptic Ulcer," advised that "the surgical procedure of choice for ulcer depends largely on whether the lesion is duo-

denal, gastric, marginal or jejunal, and the results following surgical treatment of duodenal and gastric ulcers are best when care is exercised in the selection of cases, and when the indications for surgery are most definite. Repeated hemorrhage, perforation, obstruction, or gastric retention resulting from duodenal ulcer, represent more or less urgent indications for surgical treatment. The most satisfactory results incident to the surgical treatment of duodenal ulcer are those following posterior gastro-enterostomy for varying degrees of pyloric obstruction. These excellent results led to the deduction that if gastro-enterostomy produced satisfactory results when obstruction occurred secondary to duodenal ulcer, the same procedure should produce similar results when used in non-obstructive types of duodenal ulcer, but experience has proved such conclusions not well founded. The direct operation of excision of duodenal ulcer should provide a high percentage of good results, and is a procedure particularly applicable to the bleeding type of duodenal ulcer, but unfortunately, in many cases in which hemorrhage has been a predominating symptom, there is so much inflammatory reaction about the ulcer in the acute and subacute lesions, or so much scarring in many of the chronic lesions, that the indirect operation of gastro-enterostomy becomes the procedure of necessity. Also, the direct operation is not always applicable to the lesions on the posterior wall of the duodenum. The indirect operation of gastro-enterostomy has given better results when used in cases of old chronic duodenal ulcer, with or without obstruction, than when employed in those cases of relatively short duration, and particularly in young people. The problems associated with the surgical treatment of gastric ulcer are considerably more complex than those in duodenal ulcer. The benignancy of duodenal ulcer is practically absolute, and rarely is primary malignancy of the duodenum encountered. Whether or not any relationship exists between gastric ulcer and malignancy developing upon an old gastric ulcer is a question of great importance and one regarding which there is still considerable controversy. It is quite probable that most gastric carcinomas are malignant lesions from their inception The chief problem relates to the differential diagnosis between gastric ulcer and early operable carcinoma, which frequently may be accurately established only through surgical exploration and microscopic section. To establish the accuracy of diagnosis by such methods necessitates excision of the lesion, which may be accomplished by relatively conservative or radical procedures. For true gastric ulcer, the conservative procedures are usually the ones of choice, reserving the radical procedure of partial gastrectomy for those lesions not suitable for conservative surgery."

Dr. F. D. Vickers (Deming) asked if duodenal ulcers that recur and then go for months apparently without symptoms, have healed or if they are still ulcers.

Dr. P. Richards (Albuquerque) remarked that this is a rather comprehensive subject and that differential points between the peptic ulcer and duodenal ulcer should not be discussed in the same paper, in his opinion; that a peptic ulcer is invariably an embryonic process, while duodenal ulcers are a mechanical proposition. He stated that he had never sees a true peptic ulcer cured, nor a true duodenal ulcer cured, but that duodenal ulcers would go along quiescently for years if the patient learned to sleep on his stomach.

Dr. Nathaniel H. Brush (Santa Barbara, Cal.) expressed the belief that certain tendencies, certain personalities, play an enormous role in the formation of duodenal and gastric ulcers. He referred to a personal experience in his own home, and to his worry and concern over this, which forced him to live under a great strain, during which a duodenal ulcer developed, for which he had all kinds of treatment. As soon as the personal situation cleared up, the ulcer became better.

Dr. Hunt, in closing, stated that there are many different opinions about this whole subject. A doctor asked him as to the relationship between ulcer and foci of infection, saying that he had an ulcer for years and as soon as he had his teeth extracted, all symptoms disappeared. "There is a very definite relationship between foci of infection and gastric ulcer. As I stated in my paper, when a diagnosis of duodenal ulcer can be made, in the absence of hemorrhage, pyloric obstruction, or perforation, that patient is entitled to a thorough trial of medical treatment; many of them will respond to this. As regards the healing of ulcers, we know that many ulcers heal. Frequently autopsy records will show death from other conditions, yet showing old healed ulcers, to which no reference was made in the case history. Dr. Geyman's paper was a very excellent one. His recent observations in this newer method of illustrating x-ray findings, particularly the niche, in duodenal ulcer, is very gratifying. The method he has presented is a very important step in the aid of diagnosis."

The next paper was by Professor Fred W. Allen, Jr., University of New Mexico, Albuquerque, entitled "Resistance and Immunity to Animal Infections." Prof. Allen asserted, "We know that the presence of foreign proteins or antigens in the body results in the ability of the blood, under certain circumstances, to dissolve them if they are not already in solution; to cause them to clump or agglutinate if in discrete particles or to precipitate them as solid particles if they are in solution; to fix or use up a constituent of the blood known as complement necessary for the dissolution of cellular antigens, but occurring whenever an antigen and antibody combine; and to stimulate the leukocytes to a heightened appetite for them and to increase their digestibility for the leukocytes. We also know that under certain circumstances the body is rendered immune to injury by them, while in other circumstances it is rendered highly susceptible to them when it was unharmed by them before, a condition known as anaphylaxis. We also know that when an animal in a state of hypersusceptibility to a particular protein, injection of that protein into the skin causes a characteristic skin reaction; such as in the tuberculin reaction and in the injection of pollen extracts in the skin of sensitive individuals. Just how all of this is brought about is still almost as much a mystery now as it ever was, and we are almost as much in the dark as to the relation, if any, of these various immune reactions to actual immunity. Blood immunized against either spirochetes or trypanosomes shows another peculiarity in that the blood platelets adhere to the parasites until the latter become laden with them. Erypanosomes also acquire the property of attaching themselves to leukocytes, even dead ones, which undoubtedly aids in the process of phagocytosis. Acquired resistance undoubtedly plays an important part in protozoan and metazoan infections, as well as in bacterial ones. Such resistance, in the case of protozoa, usually takes the form of antagonism to the parasites, so that they are unable to make headway and produce heavy infections; in the case of worms it takes three different forms: (1) resistance to invasion of the parasites, (2) resistance to successful maturing of the parasites after entry, (3) resistance to injurious toxic effects."

Dr. R. W. Mendelson (Albuquerque) compliment-

(Continued on page 491)

CASE OF PAIN IN RIGHT HYPOCHONDRIUM

(Diagnostic Discussions.)

(Case No. 17181, Case Records of Mass. Genl. Hospital, from N. E. Jour. of Med., April 30, 1931, page 934.)

Case Record.

An Irish laborer fifty-nine years old entered September 11 complaining of pain in the right side of the chest and flank. For six months he had had a short morning cough productive of a very little thin white sputum.

Five months before admission when he was in excellent health and working hard he had sudden onset of dull aching pain occurring first immediately after the noon meal, then after every meal, localized to an area about the size of a palm beginning in the epigastrium and extending around the right hypochondrium to the midaxillary line two centimeters above the costal margin and four or five centimeters below it. It was not related to the kind of food or to exertion or change of position. It would gradually pass off in about an hour. Although it distressed him a good deal at times he never stopped work. After three weeks it gradually disappeared and he felt entirely well for over three months. Five weeks before admission his skin was slightly yellow. Three weeks before admission the pain recurred. He at once stopped work and went to the country for a rest. This time, however, the pain persisted, accompanied by marked anorexia. He had grown progressively weaker, his weight had fallen from 158 to 140 and he had become slightly yellower, especially his eyes. For two or three weeks his urine had been dark. His abdomen had shrunken. For four days the pain had been much more intense and constantly present regardless of food. With the pain there had always been tenderness over the area involved. For the past four days this had been intensified. Even a deep breath was painful, though not with the catching pain of pleurisy. He pointed to the maximum point of tenderness well out in the flank and in the anterior axillary line. He felt very weak and any exertion caused dyspnea. For the past four days his morning cough had been accompanied by slight nausea.

His family history was good.

He had always been healthy and strong. He had had scarlet fever in childhood. His habits were good. He very rarely used alcohol.

Clinical examination showed a well nourished man with a slight icteric tinge to the sclerae and a subicteric tinge to the skin. The nasal septum deviated to the left. The apex impulse of the heart was felt in the fifth space 9.5 centimeters to the left of midsternum, 2.5 centimeters outside the midclavicular line, the right border of dullness 2 centimeters to the right, the supracardiac dullness 4. The sounds were of poor quality, the apex and aortic second sounds split. There was a systolic murmur at the apex. The artery walls were palpable and tortuous. The blood pressure was 130/85. The abdomen was distended, tense. The liver dullness was four fingerbreadths below the costal margin in the right flank. The edge of a mass was felt in the right flank four fingerbreadths down, moving with respiration. There was tenderness over the mass, which presumably was the liver. The left lobe could not be palpated. No fluid wave or shifting dullness was made out. There was questionable clubbing of the fingers. The pupils and reflexes were normal.

(Note: In presenting the case for discussion, the following paragroph was unintentionally omitted; hence the remarks in discussion on lack of blood reports.)

Before operation the amount of urine is not recorded. The specific gravity was 1.038 to 1.020. One of three specimens showed sugar and rare leukocytes. Blood examination showed 4,700 to 7,900 leukocytes, 56 to 68 per cent polynuclears, hemoglobin 60 to 70 per cent, reds 3,800,000 to 2,450,000. Two smears showed slight achromia, one slight anisocytosis. A Hinton test was negative. The stools showed a questionable guaiac at one of four tests. The fasting contents of the stomach were 10 cubic centimeters of gray watery fluid, free hydrochloric acid 6, combined 4, guaiac negative. A test meal at half an hour gave 20 cubic centimeters of similar material, free hydrochloric acid 46, combined 2, guaiac negative. A test meal at one hour gave 80 cubic centimeters of similar material, free hydrochloric acid 64, combined 6, guaiac negative. The icteric index was 10 to 8. A van den Bergh test was too low to read. A liver function test showed 25 per cent retention. Before operation the temperature was 98° to 100°, the pulse and respirations were normal.

X-ray examinations with a barium meal showed the stomach empty at six hours. The head of the motor meal was in the cecum. Peristalsis of the stomach was vigorous. The first portion of the duodenum was irritable. The cecum showed some spasm. The patient complained of tenderness over the region of the appendix. The right diaphragm was high and slightly limited in excursion. "The findings in the stomach, duodenum and cecum are abnormal but may not indicate definite pathology in any one. Similar findings have been seen in extensive inflammatory conditions." At a Graham test the outline of a normally filled gall bladder was not visible in any of the plates taken. "The findings are consistent wiht disease of the gall bladder or liver."

(Note:—There is some doubt as to whether this test was accurate. The pre-meal plates were poor.) There was an apical abscess at the root of a bicuspid.

A medical consultant advised exploratory operation.

During the first five days the abdomen was more distended and shifting dullness and fluid wave developed. The liver was not so easily palpated as at admission, but appeared slightly larger. The pain was less and the patient felt better.

September 15 biliary drainage was done. The tube passed easily. There was some cellular debris in mucoid element. No cholesterol crystals were seen, and no poylnuclears. There were some amorphous patches of golden yellow material but none bright and striking. September 18 the abdomen was softer. The spleen was easily palpable.

September 19 operation was done. The patient did well for the first two weeks. October 1 a culture from the wound showed staphylococcus albus. October 5 there were sticky rales at both bases. The other signs were obscured by the surgical plaster; no definite evidence of consolidation was made out. The abdomen showed moderate distention and a large amount of fluid. October 6 the patient complained of dyspnea and great discomfort from a sense of abdominal tightness. An abdominal tap gave 2,500 cubic centimeters of intensely bloody fluid, specific gravity 1.024; 1,250,000 red cells per cubic millimeter, 1200 white cells. Culture showed one colony of micrococcus tetragenous. The patient was given one cubic centimeter of salyrgan intravenously. That night he suddenly became weak, prostrated, cold and sweating. The pulse was 150 and almost imperceptible. The blood pressure was 70/50, the temperature 101°, the respirations 30. Within half an hour the temperature was normal, the pulse 140, the blood pressure 105/70. October 8 the fluid had reaccumulated in the abdomen. The patient again had sudden onset of weakness and faintness with practically imperceptible pulse and a blood

pressure of 70 (?)/40, both gradually falling, the pulse rate 140-170-80. That afternoon the patient died.

Discussion by Dr. J. M. Greer, Phoenix.

In this case, pain in the epigastrium going around to the right flank, in a man of fifty-nine years, coming on after the noon meal, which was probably the heaviest meal, and later after every meal, duration five months with slight jaundice, indicates some chronic or slowly developing conditioin or process in the right upper abdomen probably associated with the digestive tract or liver and gall bladder. The various conditions to be considered may be tabulated as follows:

Malignancy, somewhere. In a patient of this age previously healthy, any slowly developing condition with loss of weight and weakness, malignancy somewhere must always be considered; the anorexia could of course account for the loss of weight and weakness.

Malignancy of the stomach, and malignancy of the hepatic flexure of the colon.

Malignancy of the head of the pancreas.

Malignancy of the kidney or of the suprarenal gland (hypernephroma).

Of the inflammatory conditions the following may be considered:

Cholecystitis with or without stones, with associated cholangitis and hepatitis.

Cirrhosis of the liver.

Tuberculosis of the peritoneum.

Abscess of the liver.

The x-ray examination, together with the absence of definite stomach symptoms, help us to rule out trouble in the stomach itself. The vigorous peristalsis and irritability of the duodenum can no doubt be accounted for by some condition outside of the stomach itself. Malignancy of the colon can be ruled out by absence of definite symptoms referable to the large intestine as constipation or diarrhea, the absence of a history of obstipation and negative x-ray findings. The mass felt in that region is probably not a mass in the colon. Peritoneal tuberculosis with plastic exudate and mass of the omentum is possible, but hardly probable in a patient of this kind. Cholangitis and chronic appendicitis with associated infection of the bile ducts and abscess formation in the liver, cannot be ruled out and could well account for the increased size of the liver, the high right diaphragm and the limited excursion. The remark of the radiologist is significant to me. "The findings in the stomach, duodenum and cecum are abnormal but may not indicate definite pathology in any one. Similar findings have been seen in extensive inflammatory conditions." Why is this not an extensive inflammatory condition with infection of the gall bladder and biliary ducts with associated chronic suppuration in the liver? We are not given the blood picture nor the temperature curve in order to help us with this point. (See note in history.) This would account for the slight heart and blood vessel damage and the icteric tinge to the sclera and skin. As to uncomplicated cirrhosis of the liver, if there is such a thing, the clinical course would seem to rule this out.

Coming back to the subject of malignancy. It does not seem that there has been sufficient loss of weight, nor that the jaundice has been intense enough to warrant a diagnosis of carcinoma of the head of the pancreas. As to hypernephroma, we are not given any urinary findings, nor was any kidney work suggested. So, in the absence of such data, we must rule out hypernephroma even though the mass in the right flank might be the kidney. The Graham test points toward pathology of the gall bladder. In fact this test puts something on the gall bladder and liver and this has to be cleared up before we can rule out pathology in these two organs. Apparently the medical consultant was not very sure of his diagnosis, if he had one, or he would not have advised on exploratory operation. It would be interesting to speculate upon what was found in the abdomen at operation. It is quite evident that surgery did him very little good. Before operation the patient developed a dull and distended abdomen with fluid wave which would indicate some stasis in the portal circulation, in the absence of edema of the lower extremities which he apparently did not have. The reason the patient did well after operation was perhaps because of the removal of the fluid and no doubt the psychological effect. I do not feel that anything curative was attempted in a surgical way. The fluid that accumulated in the abdomen later was apparently a combination of transudate and hemorrhage. Just why the salyrgan was given I do not know unless it was that they thought there was some anasarca and it would be helped by this drug. The patient probably died from exhaustion and cardiac failure. I do not believe that there was enough infection to cause peritonitis and death. In fact from the data given it was a cardiac death.

After the above discussion I should like to venture a diagnosis.

I. Malignancy of the gall bladder and ducts and metastasis in the liver.

II. Cholecystitis, cholangitis and chronic appendicitis with suppurative hepatitis.

Discussion by Dr.. Frank J. Milloy, Phoenix.

The cardinal symptoms in this case are pain in the right flank and chest for six months duration, ascites, jaundice, and a tumor mass which is either the liver, part of the liver, or separate from the liver and extending into it. And apparently, aside from the cardinal signs and symptoms, there are no others. The case is conspicuous by absence of any laboratory findings or tests except the abdominal fluid taken a day or so before death. So it must be taken for granted that the laboratory tests were negative or not necessary for diagnosis. The x-ray reports suggest pathology but are indeterminate. Pain of this character, ascites, tumor mass, duration six months, is quite a typical picture of malignancy. About ninety per cent of ascites is produced by heart disease, renal disease, cirrhosis, abdominal malignancy or tuberculous peritonitis. There is nothing here to suggest renal or heart disease. There is no reason to suspect the right kidney from the location of the tumor. The absence of any history or temperature curve is against tuberculosis, especially in a man of fifty-nine. And I don't see how this can be called cirrhosis. There is no pain in cirrhosis. The course of this disease is too abrupt. In atrophic cirrhosis, the liver is contracted in the stage of ascites and if it were biliary cirrhosis, there would be intense jaundice.

The causes of jaundice are gallstones and malignancy. The patient apparently is not as jaundiced now as he was earlier in the course of the disease. Malignant lymphoma or Hodgkin's disease of the abdomen and thorax cannot be ruled out in this case unless we had some evidence of some glandular enlargement, temperature curve or some clue from the differential blood count which is not given. Abdominal Hodgkin's could produce just such a clinical picture, however.

Other tumors of the liver, as abscess and echinococcus cysts, are ruled out on the same basis. The absence of any clinical findings or positive laboratory examinations in the presence of a pain of six months' duration with ascites, icterus and tumor mass can scarcely be anything other than malignancy. The question is to determine the primary site. I hesitate to say that it is primary in the liv-

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THE SOUTHWESTERN MEETING
December 3, 4 and 5.

The Seventeenth Annual Session of the Medical and Surgical Association of the Southwest will meet in Phoenix on December 3, 4 and 5, with headquarters at the Hotel Westward Ho, where all scientific sessions will be held. The Program Committee has arranged a very attractive series of papers, address and clinics. The General Program Committee, appointed by Dr. W. R. Jamieson, of El Paso, President of the Association, consists of Drs. J. M. Greer (Phoenix), chairman; Frank J. Milloy (Phoenix), James J. Gorman (El Paso), Leroy S. Peters (Albuquerque), and Alberto Madrid (Torreon, Mexico). The Committee on Local Arrangements and Clinics, appointed by by the Maricopa County Medical Society, consists of Drs. Fred Holmes(Chairman), Fred C. Jordan and Harry R. Carson. Subcommittees consists of Drs. J. D. Hamer on Hotel and Meetings, R. B. Raney on Entertainment, Norman Ross on Transportation, Orville H. Brown and John J. McLoone on Clinics, F. B. Sharp on Publicity and Victor Randolph on Finance.

The Ladies' Auxiliary of the Maricopa County Medical Society have been asked to take entire charge of the entertainment of visiting ladies, which insures that this feature of the convention will be admirably managed.

The order of papers has not yet been determined, but the program includes the following:

"Jaundice," by Dr. Fred H. Kruse, Associate Clinical Professor of Medicine at the University of California, San Francisco.

"Tuberculosis," by Dr. Alexius N. Forster, Physician-in-Chief, Cragmor Sanatorium, Colorado Springs, Colo.

"Some Procedures in Thoracic Surgery," by Norman Bethune, Surgical Division of the Chest Clinic, Royal Victoria Hospital, Montreal.

"Does the Operative Mortality and Sequelae Justify Operation on Borderline Gall Bladder Cases," by Drs. W. L. Brown and C. P. Brown of El Paso.

"General Principles in the Management of Goitre," by Dr. Arthur L. Hertzler, Professor of Surgery, University of Kansas, Halstead, Kans.

"Intestinal Obstructions with Discussion of Diagnosis and the Time Element as a Factor in Surgical Relief," by Dr. Felix P. Miller, El Paso.

"Diagnosis and Treatment of Carcinoma of the Prostate," by Dr. David M. Davis, Phoenix.

"Intestinal Allergy and the Sequelae," by Dr. Virgil G. Presson, Tucson, Ariz.

"Problems and Management of Intractable Asthma," by Dr. George Piness, Los Angeles.

"Nephrosis," by Dr. Nelson W. Barker, Instructor in Medicine, University of Minnesota, Rochester, Minn.

"Remarks on Chronic Arthritis," by Dr. Paul Holbrook, Desert Sanatarium, Tucson.

"Climate," by Dr. Allen K. Krause, Desert Sanatarium, Tucson.

"The Effect of Heridity, Environment and Early Habits in the Development of Personality," by Dr. M. K. Wylder, President of the New Mexico Medical Society, Albuquerque.

"Subject to be announced," by Dr. W. A. Gekler, Albuquerque.

"Childhood Tuberculosis," by Dr. J. Mott Rawlings, El Paso.

"Use of Insulin as an Adjunct in the

Treatment of Tuberculosis," by Dr. D. L. Arnold, El Paso.

"Electrocautery in Tuberculosis of the Larynx," by Dr. W. E. Vandevere, El Paso.

"Extraplueral Pneumolysis," by Dr. Victor Randolph, Phoenix.

"Subject to be announced," by Dr. Ellis Jones, Los Angeles.

"Fractures," by Dr. W. L. Rogers of San Francisco.

Final program with announcements as to clinics and special features will be sent out to all doctors in the southwest by the middle of November.

Hotel reservations may be made direct to the Westward Ho, or such other hotels as may be preferred, or through Dr. J. D. Hamer, Goodrich Building, Phoenix.

JESSE GEORGE HOLMES, M. D.

In the death of Dr. J. G. Holmes, of Alamogordo, N. M., a practitioner for twenty five years in that state passed from the ranks of the profession. His last days were spent in the William Beaumont Hospital at El Paso, where his death occurred on September 28th. Dr. Holmes was born at Hamburg, Iowa on August 2, 1876. After graduation from the Hamburg High School in 1894, he took his bachelor's degree from Tabor College in Iowa in 1899, and his medical degree from Northwestern University in 1904. He located in New Mexico in 1905. He served as captain in the Medical Corps of the A. E. F., spending seventeen months in France. His body was sent to his old home in Hamburg, Iowa for burial.

COLORADO'S INVITATION TO NEW MEXICO

In the published minutes of the meeting of the New Mexico Medical Society will be found an account of the invitation from Colorado State Medical Association to the New Mexico organization to divorce themselves from the Southwest and affiliate with the Rocky Mountain states. The New Mexico Society received this suggestion courteously and diplomatically, without giving it a great deal of encouragement. However, it brings immediately to the forefront, some very important considerations at a very opportune time.

As we come up to the seventeenth annual meeting of the Medical and Surgical Association of the Southwest, we should recall the fundamental reasons for that organization. It was not that we might have just another medical society, nor that we might bring in a program of superior merit for our edification. The primary object, and the only real reason the organization has for its existence, is that we may cement more closely into a professional unit, the knowledge, abilities and accomplishments of the medical and surgical practitioners in the geographical district which we call the Southwest. This is not the first time such an approach has been made to the medical organizations within this district. When the establishment of a medical journal to represent the Southwest was first discussed, the suggestion came that it be combined with the Texas State Medical Journal. Later a direct approach was made to Arizona for affiliation with the California journal, along with Nevada and Utah. In both of those instances, and in the present flirtatious advance of Colorado, the attempt to divide the geographical unit of the Southwest and unite some portion of it to areas with which we have little common economic or professional interest, is illogical. However, it should move us to consolidate our professional efforts, and to give careful thought to the medical "front" which we present to the observing world. Any particular unit, such as New Mexico, Arizona or El Paso County, can easily lose its importance by merger, either organic or journalistic, with overwhelmingly larger units. Neither Nevada nor Utah loom very large in the pages of California and Western Medicine. New Mexico would be just as unimportant in the pages of the proposed Rocky Mountain Medical Journal. In our own journal, small as it is, we have nothing to overshadow us.

Not only in our own journal, but in our regional meeting,—the Southwest gathering,—we should give careful thought to the type of meeting which will be of greatest benefit to us. The Program Committee has a much wider function than the mere gathering together of a group of papers, however able the speakers may be. The Program Committee has the responsibility of presenting an annual pageant of the medical and surgical accomplishments of the Southwest. The annual meeting should have, as its prime object, to show the world what we have done, and not to bring to our ears what has been done elsewhere.

THE NEW MEXICO MEDICAL SOCIETY

(Continued from page 487)

ed Prof. Allen on his paper and thought more attention should be given to stool examinations, as they are just as important, in his opinion, as a blood examination, if not more so, and most accurate diagnoses might be made if this feature were carried out.

Dr. Frank Ridge (Kansas City, Mo.) stated that

the subject interested him very much; that he has a patient now who came in complaining of hunger pains, with history of considerable gastric colic. "Stomach seemed to be perfectly normal. On duodenal drainage, however, bile appeared normal except for some mucus flukes. These were alive and I have not been able to get rid of them. Following the administration of gallbladder extract, they disappeared for a few days and then returned. We have practically no parasitic infections in Missouri, at least they are very rare."

Dr. S. L. Burton (Albuquerque) thought this a very important subject and that more caution and care should be used in stool examinations, believing this would result in much better and more accurate diagnoses.

Dr. L. S. Peters (Albuquerque) referred to Prof. Allen's comment as to how little is known about the mechanism of the duodenum and said that he had heard Dr. Rich of Johns Hopkins talk on allergy, in which he claimed to have separated allergy from immunity and holds that allergy is not necessary to immunity but that the two dovetail into each other.

Prof. Allen, in closing, said in regard to stool examinations, "I do not believe we can overemphasize the importance of stool examinations, the finding of eggs and larvae which may help a great deal in the diagnosis of the condition, and which is frequently overlooked in the greater medical practice. As to the scarcity of parasites in Missouri, Dr. Ridge is partially right, I believe. Probably they are scarce, but one reason we may believe them scarce is because we have not recognized them. Regarding immunity and allergy, I still regard them as the same thing and will at least until more work has been done on them. Whether one is necessary to the other or not, I do not know. Immunity seems to me to be the widest field along bacterial lines, if you can call immunity bacteriology. What we are going to learn regarding immunity in the future is going to far exceed anything we have known in the past."

The concluding paper of the afternoon session was by Dr. M. B. Culpepper (Carlsbad), entitled "Septic Sore Throat." This he defined as "an acute infection of the tonsils and throat caused by the streptococcus group of bacteria and characterized by extreme swelling and soreness of the throat, enlargement of the cervical lymph glands and marked prostration. It is communicable, often appears in epidemic form, and is frequently spread through milk. But probably the most common cause in this country is due to contact—as children congregated in schools, or people in assemblies—and usually when one member of a family is affected, several or all of the family likewise have it. Synonyms are streptococcus angina, epidemic sore throat, streptococcic sore throat, glandular fever, the most applicable term probably being septic sore throat. The incubation period is short, from 1 to 3 days. The onset is sudden, with malaise, chills, dull headache, with rather general pains through the entire body and extremities and especially around the joints, lasting from 1 to 2 days, after which the body pains quiet. Then the soreness of the throat becomes a prominent symptom, attended with fever and headaches. After a few hours, exudate appears on the tonsils, at first greyish to a yellowish color, and finally presenting the appearance of thick membrane, resembling that of diphtheria. This membrane is usually situated upon the tonsillar surface, not often spreading to surrounding tissues. Painful swallowing throughout. Temperature rises and sometimes reaches as high as 104°, but is usually around 101° and 102°. This lasts from 2 to 4 days, about which time the exudate on the tonsil disappears. The most important complications are enlargement of the cervical lymph-nodes, erysipelas, otitis media, bronchopneumonia, arthritis, pleurisy, nephritis and endocarditis. Peritonitis where postmortem shows no evidence of an appendicitis or intestinal perforation, is a part of the general septicemia. It has been noted in most of the epidemics and is one of the most frequent complications. Under treatment, children who may present only mild symptoms should be kept in bed until all constitutional and local symptoms have disappeared. Small doses of aspirin or phenacetin can be given to relieve the pain and fever. Local irrigations of the nose, pharynx and throat, with large quantities of hot normal salt solution, are of great benefit and not disturbing to the child. Spraying or directly applying weak solutions of argyrol, mercurochrome, gentian-violet, and so forth, is of decided advantage in shortening the attack and relieving the throat. Older children can gargle with mild antiseptics or a saline solution, and the use of perborate of soda, or vince. The application of warm poultices to enlarged glands is very beneficial, as well as soothing."

In the discussion, Dr. F. D. Vickers (Deming) remarked that in Deming last year there were more cases of sore throat than he had ever before seen and therefore he thought Dr. Culpepper's paper not only very timely, but very interesting and helpful.

Dr. C. W. Gerber (Las Cruces) stated that in his part of New Mexico septic sore throat is considered a formidable disease and that, in his opinion, medical men should always take cultures of sore throats showing the exudate no matter how slight, and, where laboratory facilities are not available, the cultures should be sent to the State Laboratory. In these cases the patient is often very sick and the death rate is really a little higher than that given by Dr. Culepepper. "We have had a number of deaths in Dona Ana County from this cause and I should like to urge that cultures be taken in every case of sore throat."

Dr. Culpepper, in closing, said that the death rate is probably somewhat higher than he stated in his paper; that there might be some complications he had not mentioned, and he believed, with Dr. Gerber, that a culture should be taken in every case.

Evening Session.

The evening session at the Albuquerque Country Club, a highly enjoyable smoker, was featured by an excellent address by Dr. John W. Amesse, Denver, Colo., on "William Beaumont, America's First Contribution to World Medicine," and thereafter was given over to amusements and games, in which the members and guests heartily participated.

THIRD DAY, MAY 22, 1931.

Morning Scientific Session.

The morning program was opened with a paper by Dr. Curtice Rosser (Dallas, Texas) entitled "Proctologic Odds and Ends," which was illustrated with lantern slides. In speaking of surgery-avoiding office procedures, Dr. Rosser stated that he has been using, with uniform success for the past four years, intravenous injections of mercurochrome for that most painful and difficult lesion, anal chancroid. "The technic suggested, after auto-inoculation and smear from the vaccination lesion has verified the diagnosis, consists of intravenous injection of increasing amounts of 1 per cent mercurochrome, beginning with 3 c.c. The

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characteristic pain is relieved by the first treatment, and three to five injections, made at 48-hour intervals, clears up the pathology." The Doctor continued, "Minor anal lesions may be corrected after block of the inferior hemorrhoidal nerve filaments by peri-anal infiltration with nupercaine, and more extensive procedures may be accomplished under a low spinal. A special spinal technic useful in rectal work may be of interest. With the idea of limiting the anesthesia to the zone involved and reducing the possible decline in blood pressure, the patient is given only 25 milligrams of novocaine, mixed with spinal fluid, in the sitting position. The resulting anesthesia is exactly that obtained by the caudal block formerly used, and in the fifty minutes available, practically any necessary work may be done. No fedren is needed unless the initial blood pressure is 100 mm. or lower. Block anesthesia has been found extremely helpful in the extraction of large foreign bodies impacted in the rectosigmoid. Among my cases, a sauce bottle and an electric light globe were easily removed without severing the sphincters, removing the coccyx, or laparatomy procedures—reported by various observers as necessary in similar emergencies—by means of the very complete relaxation afforded by caudal or spinal anesthesia. Smaller objects such as beef bones, enema tips, thermometers, to select three examples from my own experience, are best removed through the proctoscope."

Dr. H. A. Ingalls (Roswell) asked in regard to the differentiation of spinal anesthesia and block anesthesia.

In closing, Dr. Rosser mentioned forms of block anesthesia as chloral anesthesia and some form of spinal anesthesia, as used in the extraction of foreign bodies.

Dr. R. E. McBride (Las Cruces, N.M.), in a paper on "The Serum Treatment of Lobar Pneumonia," brought forth that concentrated antipneumococcus serum is specifically indicated in all cases of pneumonia due to type 1 pneumococcus; that the average dose should be between 50,000 and 100,000 units in the first twenty-four hours; that the serum should be administered as soon as the positive diagnosis is made; that the earlier the diagnosis the better the chances for good results; that the antiserum is markedly free of untowards results when properly administered, but the high cost of the serum markedly limits its usefulness.

In discussion, Dr. F. D. Vickers (Deming) referred to vaccines, stating that he had found influenza vaccine not good for anything except pneumonia, in which he had obtained very favorable results.

Dr. McBride, in closing, regretted that he did not have time in his paper to go into the question of vaccines, but thought that anything that will reduce the mortality from 31 to 20 per cent, as shown by use of concentrated antiserum, is worthy of consideration.

Dr. P. L. Travers (Gallup, N.M.), in a paper on "Tribromethylalcohol Anesthesia," presented as his conclusions: "Anesthesia can be induced with tribromethylalcohol in an almost ideal manner. Convalesence is mroe comfortable and there is less nausea and vomiting than with other general anesthetics. In our opinion, tribromethylalcohol has a definite place among the anesthetic agents now available. A review of the foreign literature leaves one confused, if an effort is made to evaluate tribromethylalcohol as a general anesthetic. When used alone for deep anesthesia, its use is attended with danger, but when used as a basic anes-

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Dr. Thomas R. Brown, Baltimore.
(Gastro-enterology.)
Dr. Joseph Collins, New York City.
(Neurology-psychiatry.)
Dr. Udo J. Wile, Ann Arbor, Mich.
(Dermatology.)
Dr. McKim Marriott, St. Louis.
(Pediatrics.)
Dr. Lee W. Dean, St. Louis.
(Pediatric Oto-laryngology.)
Dr. Joseph Beck, Chicago.
(Oto-laryngology.)
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Dr. Frank L. Lahey, Boston.
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Dr. J. Shelton Horsley, Sr., Richmond, Va.
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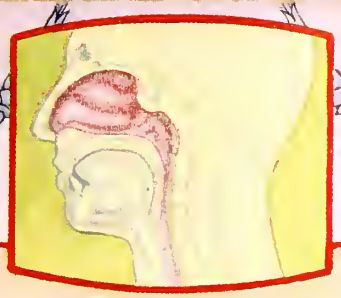

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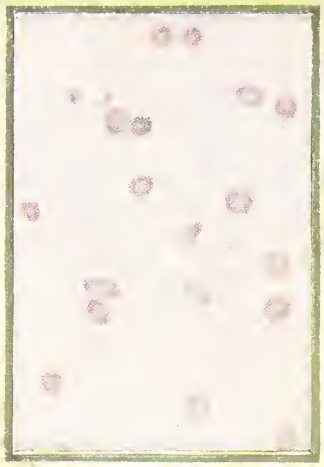

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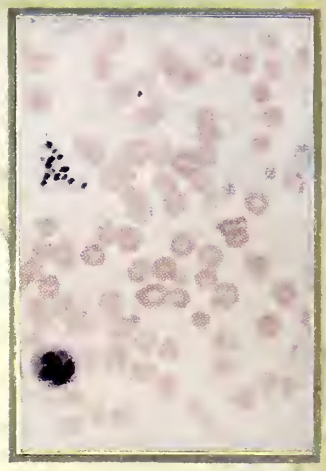

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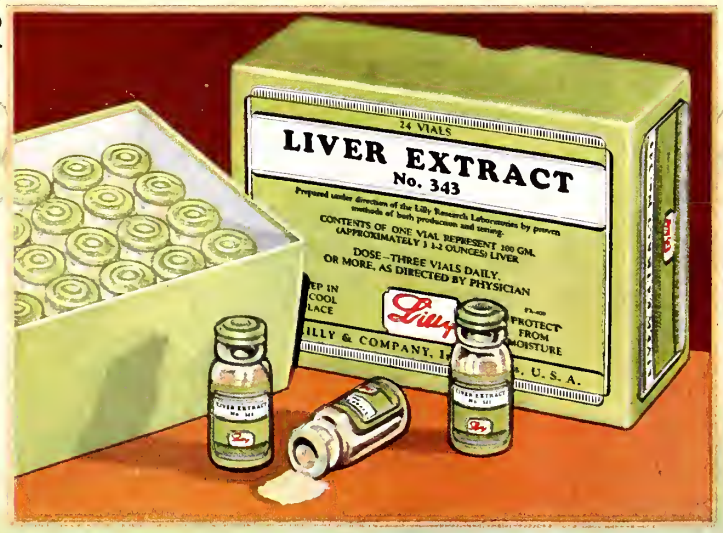

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thetic, it is probably one of the safest agents for anesthesia. We feel that the use of tribromethylalcohol with gas or novocaine combines, in the highest degree, excellence and safety in anesthesia. We stress the fact that no anesthetic is absolutely safe, and the same precautions should surround the administration of tribromethylalcohol that attend the use of any other anesthetic. Carelessness will be penalized by morbidity and mortality. A conscientious regard for the safety of the patient demands the services of a well-trained anesthetist in every major operation."

Dr. W. H. Woolston (Albuquerque), in discussion, stated that personally he had never used tribromethylalcohol, but had talked to men who have used it and they did not appear very enthusiastic over it. "Anything that would improve the type of anesthesia would be very welcome. Many people with tuberculosis cannot undergo general anesthetic. Spinal anesthesia has come back into use again and, as far as my experience with it is concerned, it is very satisfactory. Sodium amytal has been used but resolves itself into a preliminary anesthetic."

Dr. F. D. Vickers (Deming) stated that he had used tribromethylalcohol and was most favorably impressed with it; however, it is not entirely free from danger. He mentioned one case in which he did not give a full dose and before the operation began, the patient stopped breathing. It was necessary to give artificial respiration. "She finally came back, but we did no operation." He had the same experience with ether in a tonsillectomy case. He believes that tribromethylalcohol is a good thing, but advises care when giving a full dose.

Dr. E. F. Frisbie (Albuquerque), asked how tribromethylalcohol compares with sodium amytal.

Dr. Travers, in closing, stated that he believed, if Dr. Woolston would give tribromethylalcohol a trial, he would be pleased with the results; that, twenty minutes after its use the patient is sound asleep. Sodium amytal will not put one to sleep so easily.

Dr. Carl H. Gellenthien Medical Director, Valmora Sanatorium, Valmora, N.M., in "A Resume of Diet Therapy," gave interesting and valuable information as to diet, mentioning among other diseases:

"Diabetes: One of two procedures is indicated. First: An attempt should be made to cut down the potential glucose in the diet, and it should be remembered that protein and fat will give glucose. A normal diet can be given and the deficiency made up with insulin to take care of the carbohydrate, and to keep the urine sugar free. The diet, or insulin, must usually be kept up forever.

"Obesity: High carbohydrate and fat should be left out and green vegetables of 5 per cent carbohydrate group, as lettuce, cucumbers, spinach asparagus, sauerkraut celery, tomatoes, cauliflower eggplant, string beans, should be supplemented.

"Underweight: The diet should be a normal diet, plus carbohydrates and fats, as milk, sugar, frosted cakes, cheese and crackers, peanut-butter. It is interesting here to note that obese patients seem to be better satisfied with three regular meals, rather than frequent feedings.

"Spastic Constipation: This should be a normal diet, except that the roughage or cellulose is broken up by cooking and the fruits, and so forth pureed.

"Atonic Constipation: The diet should be a normal one plus increased vegetables and fruits. Green vegetables, or roughage at supper helps for a bowel movement in the morning.

"Stomach Ulcers: This diet should be similar to the one used for spastic constipation, the attempt being to prevent mechanical irritation. Vitamins B and C are important and in order to be sure that they are plentiful, strained diluted orange juice and dried yeast should be taken.

"Pernicious Anemia: A normal diet plus large amounts of liver. The liver must be kept up forever.

"Secondary Anemia: A normal diet with plenty of eggs, red meat and vegetables.

"Kidney Disease:

"Nephritic: A normal diet but limit the salt, and the proteins should be low. Never give a nephritic a salt shaker at the table.

"Nephroses: Give a high protein diet.

"Pregnancy: A normal diet with plenty of milk, fruit and vegetables. Milk supplies calcium, phosphorus, and a good quality of protein in addition to the vitamins, and so forth. One should have a quart of milk in addition to the normal diet daily.

"Ulcerative Colitis, Dysentery, Diarrhea: The diet should be low in roughage, that is, fruits, vegetables, whole grains, cereals, bread. Should have liver, strained orange juice, strained fruits and vegetables. Proteins should be increased with eggs, meat and cheese. Fat and carbohydrates should be decreased. Sugars ferment and form gas. Avoid tea and coffee, spices and foods that are either too hot or too cold.

"Allergy, Hypersensitiveness, Idiosyncrasy: The diet should consist of rice, beef, butter and sugar for a few days until symptoms are gone. Then gradually add other articles and watch for symptoms.

"Conclusions: In computing diets it is best to determine first the normal and then add or subtract individual items as necessary for the case under consideration. The caloric requirements need not be calculated to a nicety, and from the practical standpoint, the normal daily diet for an adult should contain one pint of milk, two servings of green vegetables, one raw, one serving of fruit, raw, two servings of protein foods and of foods from the carbohydrate and fat group.."

In discussion, Dr. Curtice Rosser (Dallas, Texas) thought Dr. Gellenthien's paper a well balanced one and that "some very important scientific investigations have been made along the lines of diet, but along with them there has been a hook-up of commercial interests so that the question of diet has become as much of a commercial item as Christmas is with the department stores. This has resulted in everyone being put on some kind of a diet, whether sick or well. What is good for the king's horses is not necessarily good for the king's men, so what is good for some is not so good for others. A cigarette company advertises smoke cigarettes and eat less sweets. Now the Texas Legislature has put a tax on cigarettes, so we will have to go back to sweets. All these fads are not accomplishing anything except perhaps that our patients are getting too much dieting and we are going to be forced to fight these silly fads and keep them down."

Dr. R. O. Brown (Santa Fe) expressed his enjoyment of Dr. Gellenthien's paper and thinks there is a great deal of misapprehension as to what to do when we put food in our mouths. The greatest error is not in eating insufficiently, but in very frequently eating far too much. He complimented the important work done by Dr. Sansome at Santa Barbara Hospital in connection with food reaction.

Dr. S. L. Burton (Albuquerque) announced his interest in the paper and in Dr. Rosser's talk, and

thought that the doctors are all guilty of doing what should be done—assisting their patients to diet—but that judgment should be used in showing them what to eat and in what proportion.

Dr. Gellenthien, in closing, related several interesting anecdotes in connection with food fads of bygone days.

The concluding paper on the program and of the session was one by Dr. R. A. Duncan (Amarillo, Texas), entitled "Chronic Frontal Sinusitis." Dr. Duncan declared that "a thorough knowledge of pathology is essential in this disease, for it is the basis of understanding its symptomatology and treatment. The surgeon who expects to cure his sinus cases by surgery alone will be doomed to much disappointment. Surgery is necessary in many cases, but a knowledge of the endocrine system, whether the case is allergic or not, and the administration of proper foods, particularly the vitamins, A, B and D, is also highly essential, for it has been definitely proved by observers that a cure cannot be brought about by surgery alone, nor by hgienic measures alone, but the two when properly combined will in most instances effect a cure."

In discussion, Dr. S. D. Swope (El Paso), referred to an experience he had many years ago in doing an operation for frontal sinus. The patient had complained of trouble in the head over one eye and diagnosis of frontal sinus had been made and Dr. Swope called in to operate. The brother of the patient was a minister and insisted upon prayer before the operation. The trephine did not work very well and, rather than swear in front of the minister, Dr. Swope began to whistle. The operation completed, an uneventful recovery followed, but in due course Dr. Swope heard that the minister had characterized him as the hardest hearted man he had ever met, in that he bored a hole in his poor brother's head and just whistled about it all the time.

Dr. Duncan had nothing to add in closing the discussion. Thus ended the scientific session.

GENERAL SESSION.

A meeting of the general session was held immediately following adjourment of the scientific session, President Wylder presiding. After call to order, the secretary's report, including a resumé of the proceedings of the House of Delegates (which has been published in full in the minutes of the meetings), was read and adopted.

The President read letters from the Texas State Medical Association and Potter County Medical Society, urging that members attend the meeting of the Texas State Association to be held in Amarillo Texas, in May, 1932.

Dr. R. O. Brown (Santa Fe) offered a Resolution thanking the Bernalillo County Medical Society, the Program Committee, the Entertainment Committee, the Committee on Arrangements, and, in addition, the management of the Alvarado Hotel, the members of the press and the management of the Franciscan Hotel, as also the Ladies' Auxiliary, for the very cordial hospitalities extended and courtesies shown the members and visitors, which assured success for the meeting. Unanimously carried.

Motion was made and seconded that a letter be written to every man on the program who prepared a paper for the meeting, thanking him for his attendance and part in the proceedings.

Dr. R. O. Brown (Santa Fe), expressed the opin-

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ion that it would be best to let the proposed Basic Science Act go for the present and bring it up at some future time when conditions seemed more favorable.

President Wylder, in closing the session, thanked the members of the Society for their participation, the interest taken and aid rendered, both at the meeting and during the year.

Adjournment sine die at 1 p. m.

CASE OF PAIN IN RIGHT HYPOCHONDRIUM

(Continued from page 489)

er. In this case it would be cystadenoma which would produce markedly enlarged liver with ascites and mostly negative findings otherwise, but as a rule runs a much more insidious course. The preoperative diagnosis must have been malignancy. The primary sites could be as follows: Gallbladder, pylorus, the head of the pancreas, colon or the right lung.

This could easily be primary carcinoma of the right lung or right pleura because the very onset of the disease was marked by cough, sputum and pain in the right chest and flank. Pleural pain is often referred into the flank and the abdominal tumor mass may be the result of a metatasis into the liver. Most of the evidence is against malignancy of the pylorus or pancreas, although the indefinite indeterminate, not negative x-ray report, is certainly most suspicious of gastro-intestinal malignancy.

One thing not fully explained is the enlarged spleen which I presume they mean when they say it is easily felt. This is suspicious of cirrhosis, Hodgkin's Banti's, or some blood dyscrasia, but it can also be produced by extensive hepatic malignancy which might produce a thrombosis of the splenic vein and result in splenic enlargement. I think that must be the case here. The failure of the gall bladder to outline is positive evidence of gall bladder disease which might be the original site of the carcinoma, but there is no way to prove it except by operation or autopsy.

I am unable to decide whether this carcinoma is primary in the right lung and pleura, in the gall bladder, or in the ascending colon. But on account of the onset of pain in the right flank and more or less associated with the gastro-intestinal tract, as coming on just after dinner the first time, and later, after every meal and the abnormal x-ray findings in the cecum, swing the evidence a little more in favor of the cecum and ascending colon as the primary site. This patient must have had positive occult blood in the stools and quite a marked secondary anemia along with his loss of weight.

Discussion by Dr. Loren C. Barlow, Phoenix.

This patient comes in complaining of pain in his right upper quadrant referring to his right flank and back. Noticed 5 months before admission, came on suddenly. After short time it gradually disappeared and then he felt well for three months. Then a short time before admission had recurrence of above pain, enlarged liver with questionable mass in right lower border of liver which was tender, and apparently the entire liver was tender. High diaphragm and pain over this area when he took a deep breath. Temperature not high but did run a little. X-ray of gallbladder showed no outline. X-ray of gastro-intestinal tract showed hypermotility with tenderness over cecum. His rapid decline during last three weeks with extreme toxemia associated with jaundice, tender liver, which was apparently getting larger, certainly would indicate to me some inflammatory process within liver or between the liver and diaphragm. Following

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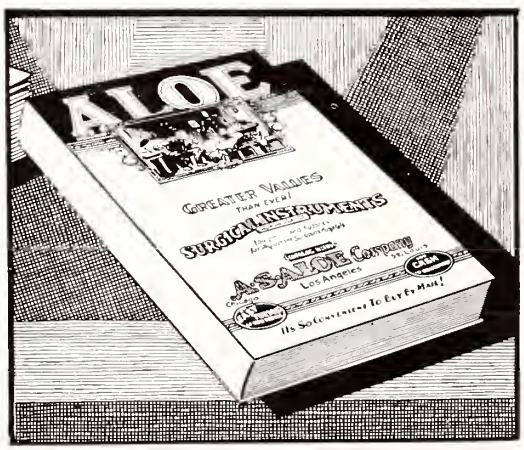

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laparotomy patient felt well for a few days, when he had internal hemorrhage. The fluid obtained by tapping showed high red and high white counts. Certainly in a man 59 years of age with a mass in the liver, jaundice, cough, pain ni right upper quadrant, we might think of a malignancy involving the liver primary in gallbladder or perhaps primary in some other point such as the pancreas. I think process is too acute, toxemia too extreme and the decline too rapid to blame this on a malignancy. To me the findings are in keeping with inflammation process centered in the liver. The tender liver, jaundice, high diaphragm, temperature, would all be in keeping with a liver abscess or a diaphragmatic abscess. I think the toxemia here is sufficient to account for his cardiac decompensation and kidney disturbance. His morning cough may mean nothing and still it may mean that the lung is involved in the same process that is taking place in his liver.

Final diagnosis: Liver abscess.

Discussion by Dr. Robert S. Flinn, Phoenix.

The presenting symptom in this case is one of hepatic enlargement. The commonest tumor of the liver is that due to carcinoma. If we were to diagnose this case, then, on statistical grounds we should unhesitatingly say that this patient had a cancer of the liver. Is it primary or secondary? Primary carcinoma of the liver is rare, and is almost always associated with cirrhosis. The symptoms of pain, ascites, jaundice, and enlargement of the spleen would fit the present case nicely. If this patient is suffering from secondary cancer of the liver we must hazard a guess as to the location of the primary growth. Is it in the stomach, gallbladder, colon, rectum or esophagus? We have a history of gastric disturbances and it is quite possible that a malignant growth high up on the posterior wall of the stomach might have been overlooked at the x-ray examination. If the enlargement of the liver were due to secondary carcinoma one should be able to feel the nodules. One should, also, not expect to feel the spleen.

The history tells us very little with regard to fever, leukocytosis or urine. It would be interesting to know if fever and leucocytosis were present. It might lead one to make a diagnosis of liver abscess. However, with no record of fever or leukocytosis and especially in the presence of ascites a diagnosis of liver abscess cannot be made. For the same reason the absence of fever and leukocytosis rules out a portal thrombosis. One should also mention all rare conditions such as actinomycosis, multiple small abscesses, and so forth. The question of a tertiary syphilis must be considered. It fits this case nicely except that we have neither history nor laboratory findings to substantiate this diagnosis.

The findings of enlarged liver with ascites suggests portal cirrhosis. Contrary to common belief, the liver is often markedly enlarged in portal cirrhosis. This patient had an enlarged liver and evidence of portal obstruction. The other findings in cirrhosis such as dilated venules, hematemesis, and so forth, are lacking. One must also mention gall bladder carcinoma as a cause for this patient's condition.

It seems to me that the diagnosis rests between a cirrhosis and a malignancy. If we had a urine examination we might think of a hypernephroma but we have nothing upon which such a diagnosis could rest.

DIAGNOSIS: Carcinoma of the liver,—primary source undetermined.

Discussion by Dr. Richard C. Cabot. and Dr. George W. Holmes, Boston.

Dr. CABOT: Of course we think of disease in the liver or the stomach. We might be thinking of the pancreas, but in the absence of a palpable tumor and of marked jaundice we have so far no evidence. So I should think chiefly stomach and liver so far, taking the liver to include the gall bladder. At his age malignant disease is always the first thing we think of.

From the heart measurements we are rather dubious whether there is any evidence of enlargement. There certainly is not much.

The fact that the sounds were of poor quality and the apex and aortic sounds were split has no special significance. The systolic murmur at the apex also is nothing we can use for diagnostic purposes.

If this questionable clubbing of the fingers is really present we should expect that the trouble had been going on longer than we should otherwise suppose.

Except for the sugar and rare leukocytes I take it the urine was negative and can be taken as throwing no aspersions on the kidneys.

The blood examination is within normal limits. There is nothing there to show any evidence of gastric disease.

Twenty-five per cent retention by the liver function test ought to mean organic liver disease.

Have you anything to add, Dr. Holmes, in comment on what was said of the x-ray examination?

DR. HOLMES: I would agree pretty much with what has been said, that is in regard to the very indefinite findings. Spasm and irritability in the gastro-testinal tract might be due to a number of causes. The Graham test, when we fail to get the gall bladder, provided no mistake is made in

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carrying out the technic usually means disease of the gall bladder or limited liver function. To be sure of it I think it always ought to be done twice, particularly in the Outpatient Department, where the patient does not always carry out instructions.

DR. CABOT: The x-ray evidence, then, points to the liver rather than the stomach. It does not point to any other organ we can name in that vicinity, not to the kidney or the colon. So it seems to me it comes down to a differential diagnosis of chronic diseases of the liver on which we may get further light as we go on.

The additional evidence we have while he was in the ward is of a shifting abdominal dullness. That points toward stasis and is good evidence of ascites.

Differential Diagnosis

Before we come to the operation we ought to commit ourselves as to what we think will be found. We have to consider in our differential diagnosis diseases causing enlargement of the liver with pain in a man fifty-nine with evidence of destruction of liver tissue or lack of function (the liver function test). There is practically no fever and normal pulse and respirations, so that there is no evidence of any inflammatory condition in the liver. There is slight jaundice, but not marked, not the sort ordinarily going with yellow atrophy. It seems to me it essentially comes down to the question between malignant disease and cirrhosis. His habits are said to be good. He rarely used alcohol. To a certain extent this is against cirrhosis. One hesitates ever to make a diagnosis of malignant disease of the liver unless one has evidence of it in some other organ in which it is primary. I cannot see evidence in this kidney to point to primary disease. It might be primary of course in the gall bladder or bile ducts ; we have no evidence about that. The gall bladder was not functioning very well, but that might be from other causes. The case does not fit well with any single diagnosis I can think of. It does not seem like cirrhosis or malignant disease. But it seems more like those two than anything else. He has had more pain than most cases of cirrhosis, and they did not find ascites until late in the course. It was not evident at the beginning. Yet on the whole I incline more towards malignant disease than towards cirrhosis.

Preoperative Diagnosis.

Cirrhosis of the liver.

Operation.

There was free blood lying in the right kidney fossa Inasmuch as this obviously was coming from the wound edge, the question arose as to whether it was caused by preoperative palpation of the liver.

The patient had an enormously large liver extending from the right kidney fossa well into the left kidney fossa, hard and knobby, the surface bleeding at the slightest touch. The blood was very gently mopped out. As there apparently was no continued bleeding the wound was sewed up tight.

Postoperative Diagnosis.

Cirrhosis of the liver.

FURTHER DISCUSSION.

DR. CABOT: Neither one of the things I have supposed ought to cause free blood in the kidney fossa. That is unexpected to me. The hard and knobby liver means malignant disease. It cannot mean anything else that I know.

DR. MALLORY: The surgeons thought it was cirrhosis even after operation.

DR. CABOT: They certainly described it in a queer way for cirrhosis. Of course if we suppose he has malignant disease of the liver, not knowing yet where it comes from, it is perfectly easy to account for the ascites through the mesenteric and retroperitoneal glands which would probably be there and would disturb the retroperitoneal glands which would probably be there and would disturb the retroperitoneal circulation.

I do not see why they do those cultures on the abdominal fluid. I do not remember one time when they were of any use.

He died, I should suppose, having some hemorrhage, very possibly from his lesions in the liver.

I still have nothing more to say than I did before operation. It seems to me that the evidence is still for malignant disease from the description given, but I am still bothered as before because I have no primary focus.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD.)

Cirrhosis of the liver.

DR. RICHARD C. CABOT'S DIAGNOSIS. ANATOMIC DIAGNOSES

Malignant disease of the liver, primary focus unknown.

Hepatoma with metastases to the left adrenal and the peritoneum.

Toxic cirrhosis of the liver.

Ascites.

Pathologic Discussion by Dr. Tracy B. Mallory, Boston.

This is a somewhat rare case in that it is a primary carcinoma of the liver, a hepatoma. We have happened to have an unusual number of them in the past four years, five in a thousand autopsies.

It is sometimes difficult to make a certain diagnosis of primary carcinoma of the liver even on histologic examination. If the cells are well differentiated they may be forming bile, and then there can be no argument, for the tumor cell that secretes bile must be a liver cell. That was the case here. The larger portion of the liver was filled with carcinoma. There was also a very large metastasis to the left adrenal gland, completely replacing the gland tissue. That metastatic tumor to the adrenal was bright green, far more jaundiced than any other organ in the body, thus giving us the diagnosis. These cases always have a preceding cirrhosis. I think if the surgeons had given us a little better description of that liver it would have been possible to make the diagnosis. At autopsy we found two definite types of change in the liver. The entire right lobe was filled with grossly nodular white and umbilicated tumor masses. That is obviously the condition which they described. Between the tumor nodules in the right lobe there was also a defnitie cirrhosis of a finely nodular character. The combination of cirrhosis and tumor is very strong presumptive evidence, when as in this case we have no other demonstrable focus of origin, that we are dealing with primary cancer of the liver. He had numerous metastases in the peritoneum and in the omentum. I do not doubt that it was the peritoneal metastases which were responsible for the blood in the abdominal fluid. The other organs were all essentially negative except for moderate collapse of the lower lobes.

The spleen was not very big, only twice the normal size. I think what was felt was probably the left kidney, pushed forward and downward by the tumor in the adrenal. The spleen in itself would hardly have been palpable.

I have the record of an older case here, essentially the same picture. There was a perfectly definite cirrhosis there, and also a primary cancer of the liver. These tumors are prone to invade the hepatic veins and often grow in solid masses up

the vena cava. I have seen a mass the size of my fist in the auricle of the heart. Fragments breaking off from these tumor thrombi lead to metastases in the lungs quite commonly.

The cirrhosis always precedes the tumor. So far as I know there is only one condition in which primary hepatoma has been found except that of a preceding cirrhosis, and that is liver fluke infection in the Chinese. Primary cancers of the liver seem to be common in the Chinese in areas where liver fluke infection is quite common.

MAMMARY CANCER. Chas. A. Vance, Lexington, Ky., Sou. Med. Jour., 24: 112, (Feb., 1931).

The prognosis in mammary cancer depends on the length of time the disease has existed when the patient comes to operation, the thoroughness of the operative procedure, and, perhaps, the virulence of the disease. Theoretically, if the diagnosis is made prior to the occurrence of metastases to glands or elsewhere, and radical operation is performed at once, there should be no recurrences and no deaths. In every case of mammary cancer, careful x-ray examination of the chest and long bones should be made, as metastases sometimes occur very early There is yet no consensus of opinion in regard to either preoperative or postoperative x-ray therapy. The author's personal feeling is that x-ray is beneficial when used both before and after radical operation.

MAGNETIC BELTS. The old-time electric belts of our fathers' and grandfathers' days were crude affairs. They were to be worn next to the body and guaranteed to cure whatever ailed one. Quackery moves with the times. Human credulity is just as common a commodity as ever, but the methods of capitalizing it must, perforce, change with the times. The present-day successor to the old electric belt is the so-called magnetic belt. The first of these was put on the market by Gaylord Wilshire and called I-on-a-co. The I-on-a-co and its numerous imitations, are simple solenoids—coils of insulated wire that when plugged into the alternating current of the electric lighting system, produce a fluctuating magnetic field within the coil. While it has long been known by scientific men that magnetism has no effect on the physiologic processes of the body, and while it has also been known that magnetic permeability of the human body is that of air, the public does not know it—and that is all that is necessary from the standpoint of the quack. A number of imitations of the I-on-a-co have been exploited, among them being Theronoid put out through one formerly associated with Wilshire and Vitrona by one Madison formerly employed by the Theronoid Corporation. In 1926 the Federal Trade Commission issued a complaint against the promoters of Vitrona charging that the device has no curative or therapeutic value, action or effect. Later the Commission issued a Cease and Desist Order. (Jour. A.M.A., May 16, 1931, p. 1718.)

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	Grams	Prot.	Fat	CHO.	Cal.
1½ tablespoonfuls Knox Sparkling Gelatine	10	9	..	..	..
¼ cup cold water	..	..	..	..	..
1 square chocolate, grated	30	4	15	9	..
¾ cup hot water	..	..	..	..	..
¾ cup milk	180	5	7	9	..
2 eggs	100	12	10.5	.	..
¼ cup cream, whipped	60	2	18	2	..
5 tablespoonfuls sugar	40	..	..	40	..
1 teaspoonful vanilla	..	..	..	..	..
Few grains salt	..	..	..	..	..
Total		33	50.5	60	826.5

Soak gelatine in cold water. Heat chocolate, water, milk and salt over hot water, then add gelatine and stir until dissolved. Separate eggs and beat egg yolks until lemon colored. Stir hot mixture slowly into egg yolks. Return to stove and heat over hot water until mixture thickens slightly. Remove from stove, add vanilla and chill until nearly set. Beat egg whites until stiff, fold into jelly, also whipped cream. Mold and chill until firm.

LEMON MIST

(Six Servings)

	Grams	Prot.	Fat	CHO.	Cal.
1 tablespoonful Knox Sparkling Gelatine	7	6	..	..	..
¼ cup cold water	..	..	..	..	..
1½ cups hot water	..	..	..	..	..
Grated rind 1 lemon	..	..	..	..	..
¼ cup lemon juice	40	..	..	4	..
2 eggs	100	13	10.5	..	..
2 tablespoonfuls sugar	16			16	..
Total		19	10.5	20	250.5

Soak gelatine in cold water. Boil rind of lemon in water used for dissolving gelatine; add sugar; pour on soaked gelatine—stir until dissolved. Pour this into well beaten egg yolks. Return to stove and cook over hot water until mixture thickens slightly, stirring constantly—add lemon juice and pinch of salt. When nearly set fold into egg whites which have been beaten stiff. Mold and chill.

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SOUTHWESTERN MEDICINE

(REGISTERED U. S. PATENT OFFICE)

Volume XV November, 1931 No. 11

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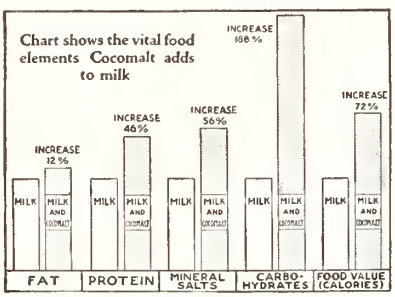

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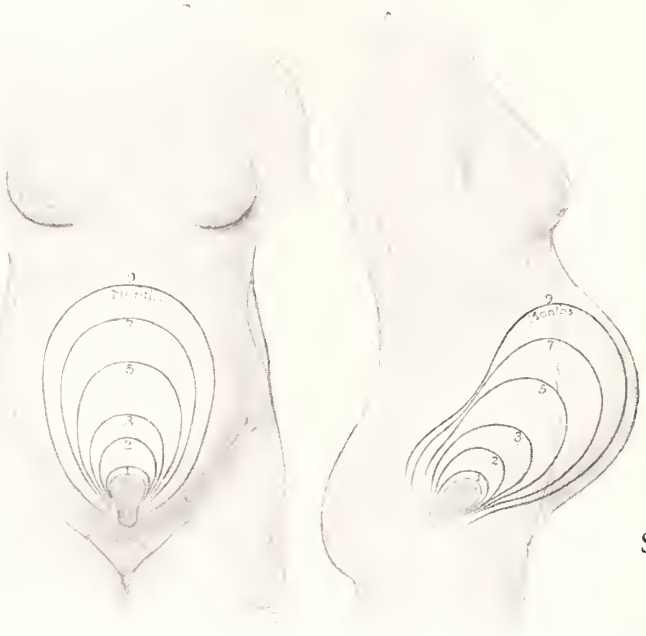

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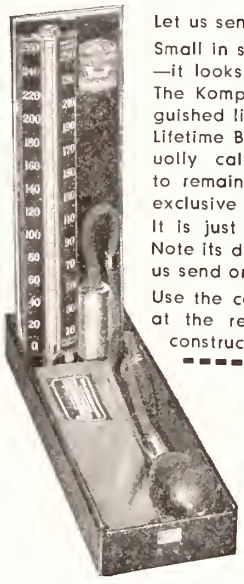

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THE RELATION OF THE EYE TO GENERAL DISEASES*

WILLIAM C. FINNOFF, M. D.
Denver, Colorado

(Read before the New Mexico Medical Society, at its Forty-Ninth Annual Meeting, at Albuquerque, N. M., May 20-22, 1931.)

The important relation between opthalmology and medicine in general is not always realized; the value of an ophthalmoscopic examination of the fundus in suspected brain tumor is fully appreciated by most neurologists, but the aid that may be rendered in other conditions is often overlooked. Many times some general disease is discovered by the careful ophthalmologist in his routine examination of cases of refraction. This is especially true in cardiovascular diseases, nephritis, brain tumor, multiple sclerosis, diabetes, and a host of other diseases. In the introduction of his book, "Medical Ophthalmoscopy", that was published in 1879, Gowers wrote: "The ophthalmoscope is of use to the physician because it gives information, often not otherwise obtainable, regarding the existence of disease elsewhere than in the eye." Yet how few physicians have mastered the technic of the use of this simple method of examination.

The ophthalmoscope should be in more common use than the sphygmomanometer, for it gives more accurate information regarding the state of the blood vessels, in addition to throwing light on other obscure conditions. With the modern electric ophthalmoscope the technic is not difficult; even a young child can be taught to use it, even any physician, with a small amount of practice, can master its use without a demonstration by an expert. There are difficulties, however, in learning to interpret the normal fundus from the abnormal. One of my medical friends who limits his practice to obstretrics and pediatrics, once said to me that the ophthalmoscope was an indispensible instrument in his branch of work because it had helped him recognize conditions that he otherwise would have overlooked. He knows little about the rare conditions that often occur in the macula and other parts of the fundus, but he can differentiate between the normal and abnormal, and, when in doubt, can ask for help from the ophthalmologist. With a small amount of reading and the routine examination of every patient's fundus, a physician may soon become familiar with the normal fundus. If he observes carefully the optic nerve, blood vessels, color of the retina, and so forth, it will not be long before he will notice abnormalities. Then, with the study of a few simple works on the subject, he may familiarize himself with the abnormalities of the eye grounds that throw special light on diseases with which he may expect to be in contact. This much can be done without special graduate study.

The ophthalmoscope is not the only ophthalmic instrument that throws light on general diseases. The perimeter and other instruments for the examination of the visual fields are of great value in uncovering certain pathological conditions. These, however, have a limited field of usefulness and belong to the field of ophthalmology. The internist should be familiar with the confrontation method that often uncovers grave changes; he should also know how to test the pupillary reactions and be acquainted with action of the extra-ocular muscles.

Toxic goiter with exophthalmus is one of the most striking examples of a general disease with obvious ocular manifestations. The characteristic staring expression that follows the protrusion of the eyeballs

*From the Department of Ophthalmology, University of Colorado.

was first described by Dalrymple and is called Dalrymple's sign. With the protrusion of the eyes, winking becomes less frequent—Stelwag's sign. When the eyes are turned downward, the upper lid fails to follow the eyeball—Graefe's symptom; and, in severe cases, the act of convergence becomes difficult—Mobius' sign. When these symptoms are associated with tachycardia, tremor, a high basal metabolism rate, loss of weight, and so forth, the diagnosis becomes easy. A unilateral protrusion of an eyeball may occur in goiter, especially in its early stage; this symptom, however, is usually the result of tumor, inflammation in the orbit, cavernous sinus thrombosis, and other diseases accompained with masses in the orbit. In xanthomatosis, exophthalmus occurs, but the disease could hardly be confused with exophthalmic goiter.

In goiter the protrusion of the eyeballs may assume alarming proportions. The cornea may ulcerate from exposure and require suturing of the eye lids or a tarsorrhaphy.

Campbell found exophthalmus present in 93 per cent of 110 cases of toxic goiter, and in Dock's seies it occurred in about 70 per cent of the cases.

The cause of the exophthalmus in toxic goiter is not definitely known. Some contend that it is due to an increase in the amount of fat in the orbit, and others think it results from edema of the orbit, and it may be due to a combination of both. Extreme congestion of the orbital blood vessels has been advanced as a cause, but this hardly seems likely, because in many cases there is no engorgement of the retinal veins. Spasmodic contraction of the unstriped muscle of the orbit from sympathetic nerve stimulation has been proposed as a cause. None have been definitely proved, but from postmortem studies it seems that it is due to a combined edema and increase in the amount of orbital fat.

After exophthalmus, the most conspicuous ocular symptom of general disease results from palsies of the extra-ocular muscles. Ptosis, or drooping of the upper eyelid, occurs after paralysis of the elevator muscle of the upper lid. Ptosis may be unilateral or bilateral and must be differentiated from the congenital, traumatic cases of pseudoptosis that occur in trachoma, tumors and edema of the eyelids. True ptosis is due either to lesions in the nerve trunk, nucleus of the third nerve, or in the cortex. When associated with paralysis of other ocular muscles, the lesion is usually in the nerve trunk, but a massive lesion in the third nerve may produce the same condition. When cortical in origin, the ptosis is not associated with paralysis of any of the other ocular muscles and is unilateral. Syphilis is the most frequent cause, excepting in the acute from associated with ophthalmoplegia, when alcohol, lead and carbon monoxide poisoning should be suspected. Ptosis is also seen in botulism, encephalitis lethargica, diphtheria, influenza, and other infectious diseases; in diabetes, disseminated sclerosis, progressive paralysis, and a few less common conditions.

In paralysis of the cervical sympathetic, the syndrome of Homes occurs. There is a partial ptosis with contraction of the pupil, flushing of the face, and increased perspiration on the affected side that is due to engorgement of the blood vessels. Pressure from tumor masses in the neck or enlarged lymphatic glands, is the usual cause.

External rectus paralysis, if bilateral and complete, is usually associated with basal diseases; if bilateral and partial, it is usually due to tumor within the brain substance. Unilateral paralysis may be due to exposure of the nerve trunk to cold, or the diseases mentioned as causing ptosis.

Ocular palsies also occur from orbital abscess, cellulitis, or tumors from fracture of the skull. Botulism, diabetes, tabes, encephalitis lethargica, multiple sclerosis, polioencephalitis, diphtheria, meningitis, syphilis, brain tumors, bulbar paralysis, pressure from sclerosed vessels or aneurisms, and occasionally lead poisoning, are among the general diseases in which ocular palsies are seen.

Diplopia is the most annoying symptom of ocular palsies. It is noted when the gaze is directed in the field of action of the paralyzed muscle and the distance between the images increases as an attempt is made to turn the eyes in that direction. Objectively, the observer notices a lag in the movement of the affected eye as the eyes are turned toward the paralyzed muscle. In cases of long standing, the affected person learns to suppress the image of the affected eye, and the diplopia disappears. Dizziness and confusion accompany the diplopia. If an elevator muscle is paralyzed, a compensatory torticollis may develop. After the affected muscle is localized, it is easy to determine the nerve supply and decide the location of the lesion. In tabes, the nuclei in the floor of the fourth ventricle are usually involved. The same is true for multiple sclerosis, encephalitis lethargica, botulism, and other conditions.

Abnormalities in lateral movements, without paralysis of individual or groups of muscles, occur in lesions of the cerebellum, pons, or association centers.

Paralysis of vertical movements of the eye is usually due to lesions in the anterior part of the oculomotor nuclei or lesions in the corpora quadrigemina.

Nystagmus is due to several causes. When not congenital or of vestibular origin, it may indicate lesions in the cerebellum, or cerebellopontine angle, or an affection of the fibers gong to Deiters' nucleus; it occurs in encephalitis lethargica, syringomyelia, Little's disease, idiocy, and in certain poisoning.

In recent years a study of the visual fields has played an important part in recognizing the location of lesions in the brain. Well-informed neurologists are aware of its importance and are demanding painstaking studies of the visual fields for this purpose. Uhthoff wrote, in 1900: "In no nerve territory is functioned testing elaborated to such extent as in connection with the optic nerve." Through the visual fields precise knowledge is often obtained that cannot be found by any other method.

Defects in the field may be divided into four groups:

(1) Those due to diseases of the eyeball, viz., glaucoma, chorioretinitis, optic neuritis, optic atrophy, and so forth. These are usually independent of general diseases. (2) Those due to lesions of, or to the effect of pressure on, the visual tracts or centers in back of the eyeball. (3) Those due to the absorption of toxins (toxic amblyopia). (4) Functional. The first is of interest only in making a differential diagnosis.

The second group are of extreme importance. Pituitary disease, for example, is often discovered first by the ophthalmologist. The patient consults him first because of poor vision that he thinks might be corrected with new glasses. While examining the patient, the ophthalmologist becomes aware of the fact that the poor vision cannot be attributed to an error of refraction; he may have found some abnormality in the appearance of the optic nerve, but, on taking the fields of vision, he discovers some abnormality—usually a defect in the temporal fields. General symptoms of pituitary disease are looked for and an x-ray of the skull requested. If an enlargement of the sella turcica is found, the diagnosis is established.

Tumors of the pituitary body, through pressure on the crossed fibers of the inner aspect of the chiasm, cause bitemporal changes in the fields of vision. The hemianopsia may be partial or complete. In advanced cases the whole field may become destroyed and atrophy of the optic nerve occur. Homonymous hemianopsia or altitudinal defects may be present when the chiasm is pushed upward and the carotid arteries put on the stretch. Monocular blindness occurs if the tumor is directed to one side only.

Homonymous hemianopsia is half vision on the same side of the visual field. When it is partial in the beginning and progresses, it should suggest an abscess or tumor in the temporal lobe on the opposite side of the brain from the defect in the visual field. Vascular lesions, i. e., embolus, hemorrhage or thrombus in the vessels that supply the optic radiations, may be the cause. This is especially true when the onset is sudden. When symptoms come on gradually and are progressive, the cause is either an abscess or tumor of the brain. The associated general symptoms, when combined with hemianopsia, aid greatly in accurately localizing the lesion.

Frontal lobe disease and tumors are frequently associated with central scotomata in the early stage and blindness with optic atrophy, on the side of the tumor, in the later stages.

In injuries of the occipital lobe, field defects are usually present. Their position in the field aids in localizing the exact position of the injury. Since the world war, our knowledge in this field has been greatly enlarged.

Chronic intoxication with tobacco and alcohol occasionally involves the maculopapillary bundle of nerve fibers and produces a central scotoma. If discovered early and the toxins eliminated, recovery may take place; in chronic cases, the visual defect may become permanent.

Quinine in large doses may cause blindness. Doses of three grams or less have produced optic atrophy. Ethyl hydrocuprein, or optochin, may produce a similar condition.

Blindness after the ingestion of wood alcohol may be sudden and complete; vision may return for a short time, but is eventually lost when the nerve becomes atrophic.

Lead, Filix mas, atoxyl, potassium chlorate, acetanilid, oil of wintergreen, pomegranate root, nitrobenzol, and the inhaling of the fumes of exploded dynamite, may produce toxic amblyopia.

Xanthomatosis, liporeticular disease (Shiller-Christian's syndrome), a disease due to faulty fat metabolism, may be recognized by the peculiar appearance of the orbits and the position of the eyes. The eyes seem large and bulging from their sockets; there is an associated change in the bones of the body with the formation of xanthomaplacques. Shiller thought that the condition was due to a disease in the brain near the tip of the third ventricle.

THE PUPILS

The importance of the pupils to general medicine is well known to all. The Argyll Robertson pupil in locomotor ataxia and general paralysis, is generally recognized. In this condition the pupil reacts to convergence, but not to light. The fact that it occurs, occasionally, when syphilis is not present, is not as well known as it should be. Argyll Robertson pupils have been reported in encephalitis lethargica, disseminated sclerosis, tumors in the region of the third ventricle, and so forth.

Irregular and unequal pupils are often present in neurosyphilis. They may be present in other conditions; for example, pressure of tumors or enlarged glands on the sympathetic nerves. The Horner's syndrone, which has been mentioned, is an instance. Unilateral blindness causes inequality of the pupils.

The importance of the pupils in the various stages of anesthesia and other forms of intoxication only needs mentioning.

Interstitial keratitis is an inflammation of the stroma of the cornea that is characterized by the presence of opacities, the appearance of blood vessels in the corneal stroma, marked photophobia and lacrimation, and subjective symptoms. The disease occurs mostly in the young and, in the great majority of cases, is due to congenital syphilis. Hutchinson's teeth, saber shins, and other stigmata of the general disease, are usually found after careful examination.

The foregoing pages have been confined to manifestations in the eye that could be recognized by external examination. We shall now turn our attention to the intro-ocular manifestations of general disease. I shall begin by discussing the more common conditions and later mention the others.

There is no place in the body, where the state of the blood vessels can be studied during life under satisfactory magnification, as well as in the eye. In the fundus the small arterioles can be distinctly seen if the refracting media are cleared. Abnormalities of the blood vessels may be recognized in the very early stage of arteriosclerosis. It is not unusual for the ophthalmologist to be the first person to discover this disease, in the course of routine examination of the patient preparatory to refraction. Every internist, as was stated in the first pages of the paper, should be sufficiently familiar with the use of the ophthalmoscope to study the ocular blood vessels and recognize this abnormality. The appearence of the retinal vessels gives one an insight into the condition of vessels in the brain and in the body in general. Sclerosis occurs first in the arteries; it manifests itself by an increase in the brilliancy in the central light reflex. As the vessel walls become more rigid, the blood column becomes smaller and the arteries seem to be contracted. They then compress or kink the veins, to a varying degree, at the crossings. As the disease advances, the terminal arterioles becomes tortuous, and resemble corkscrews. In more advanced cases, the caliber of the main trunks varies in size. The compression of the veins by the arteries also becomes more pronounced and, in advanced cases, a marked change in the direction of the trunk of the vein after it passes under the artery, takes place. In late cases, the blood column becomes threadlike and the walls of the arteries are streaked with white, the so-called pipe-stem sheathing. Small round and flame-shaped hemorrhages and whitish or yellowish exudates, occur in the retina. The exudates and hemorrhages are usually small in size and are located chiefly in the posterior pole of the eyeball near the macula; they are absorbed slowly, some may remain unchanged for months. The prognosis for the tenure of life is uncertain; some live a few, while others live many years. The prognosis is more grave when arteriosclerosis of the retinal vessels is associated with cardiorenal disease.

ALBUMINURIC RETINITIS

This is an exudative change that occurs in the retina in diverse conditions. It is seen most often, however, in the late stage of chronic interstitial nephritis and, when associated with it, should be called renal retinitis. Renal retinitis is a late manifestation of the kidney disease. It is probable that few cases that die in uremia escape some changes in the retina. The advent of renal retinitis during the course of a chronic nephritis, makes the prognosis grave. Few cases live longer than two and a half years after the appearance of the retinal lesions.

Since chronic interstitial nephritis occurs about twice as frequently in the male, the retinal disease is twice as common in him.

The blood pressure is usually raised when renal retinitis is present. But not all cases of renal retinitis have hypertension; there are cases of renal retinitis on record with low blood pressure.

The retinitis of pregnancy, when not associated with a chronic nephritis, is attended with a better prognosis than are the cases of renal retinitis. If labor occurs or the pregnancy is terminated, the retinitis may recover with little or no change in vision; and the patient may live for years. As a rule, the retinitis does not recur in subsequent

pregnancies. The retinal changes occur more rapidly and are much more severe in the cases of pregnancy than in the retinitis due to other conditions. Detachment of the retina is not uncommon, but it reattaches if the pregnancy is terminated. Hill, of Richmond, Virginia, reports a case of bilateral detachment of the retina that recovered normal vision after the termination of the pregnancy.

In general, the ophthalmoscopic changes that occur are the same in both conditions; they are exudates, hemorrhages, and edema. The exudates appear as white areas in the retinal tissue, that vary in appearance depending on their histological character and their age. The cotton wool or snow-banked patches, occur early; they are massive white exudates located in the retina near the posterior pole. They are often deposited in the inner layers of the retina and may be located in front of the blood vessels. The exudate is fibrinous in character. Their edges are not clearly defined and hemorrhages usually accompany them. In cases of longer standing, the exudates become less diffuse, smaller in size, and the edges more sharply defined. This appearance is due to hyalin and fatty degeneration of the fibrinous deposits.

Often the exudates in the retina arrange themselves in the form of a radiating star with the foveola of the macula in the center —the so-called macular star. This is most common in renal retinitis, but it may occur in the retinitis of arteriosclerosis and other conditions. The appearance is due to the accumulation of exudate between the radiating fibers of Henley that are located in the macular region. Exudates of this type may remain for long periods of time. White patches in front of the retinal vessels are sometimes seen in cases of long standing. These are due to degenerative changes in the axis cylinders of the nerve fiber layer. Blood vessels may show little or no change if arteriosclerosis is not present.

Papilledema may accompany the exudates in cases of so-called albuminuric retinitis, and, since headache and vomiting are not uncommon in renal disease, the swollen nerve may confuse one into beliveing that the papilledema is an indication of brain tumor.

After the absorption of exudates from the retina, pigmentary changes occur. They can be seen with the ophthalmoscope occupying the posterior pole of the eyeball. They remain permanently. The exudates may remain for long periods of time, especially in the cases where hyalin or fatty degeneration has taken place.

OTHER RETINAL MANIFESTATIONS OF GENERAL DISEASE

Hemorrhages and exudates occur in the retina in leukemia and pernicious anemia; in the former, the color of the blood in the vessels becomes pale, but it is not changed in the latter. The hemorrhages are usually found surrounded by a halo of white exudate. The color of the blood in the vessels changes to yellowish or chocolate color in some forms of diabetes. This form of lipemia retinitis is usually seen in the late stages and is due to a high fat content in the blood. It is transient in nature and it may be seen only over a short period of time.

Optic atrophy from secondary anemia is not uncommon. This is a form of primary optic atrophy; the disc becomes chalky-white and blindness may result. The size of the blood vessels is not affected.

DIABETES

Diabetes is attended with varied complications in the eyes. From twenty to thirty per cent of the cases of diabetes in persons over fifty years of age, show eye complications. Their appearance does not necessarily indicate the grave prognosis for life, as is the case in renal retinitis. The affections of the fundus and crystalline lens are associated with visual impairment. Cataract is the most frequent eye complication; it comprises about one-third of the eye complications; retinitis is next and is seen in one-fifth; optic neuritis, palsies of the ocular muscles; changes in refraction, iritis, vitreous opacities, optic atrophy, thrombosis of the retinal veins, changes in the color of the retinal blood, retrobulbar neuritis, and hemorrhagic glaucoma are among the other complications.

Sudden changes in the accommodation and refraction should always excite suspicion of diabetes; hyperopia may increase or myopia develop. It is probably due to changes in the index of refraction of the lens.

When cataracts occur in elderly persons, it is often difficult to determine whether they are senile in character or due to the diabetes. When they occur in the young diabetics, they are usually bilateral, develop rapidly, and are of the soft variety. The prognosis after operation is good, if the diabetes can be controlled and if no changes have occurred in the fundus.

Diabetic retinitis usually occurs in cases of long standing and is due in most instances to changes in the blood vessels or nephritis. In typical diabetic retinitis, Hirshberg found no edema and the exudates were well defined and usually located between the upper and lower temporal vessels. They were smaller in size than the renal variety and had irregular or notched edges. They never form

the star-shaped figure that occurs in renal retinitis. Hemorrhages of varying size and location occur; in severe cases, they rupture the hyaloid and diffuse into the vitreous, and become organized into bands of scar tissue.

Retrobulbar neuritis is associated with changes in the visual field; at first there is a central scotoma which may persist for a long period of time or become permanent. Optic atrophy and blindness may occur.

In lipemia retinitis, the color of the blood in the retina changes to a chocolate color or may become bright yellow or milky in character. This is due to a high fat content in the blood. It is usually seen in advanced cases, often in the stage of coma, and is more frequent in young persons.

PAPILLEDEMA OR CHOKED DISC.

Papilledema or choked disc is one of the very important symptoms in tumor of the brain. It is characterized by haziness of the margins and swelling of the disc and is due to edema. Ophthalmoscopically, the edges of the disc are blurred and seem to blend with the surrounding retina. The surface of the disc is elevated, the vessels pushed forward, the veins are dilated and tortuous. The arteries and veins seem to tumble over the edge of the elevated disc and reappear at a different level on the surrounding retinal surface. Hemorrhages are usually present on the disc and in the retina. There are no whitish exudates or streaking of the arteries. Any elevation of the disc of three diopters or more above the surface of the surrounding fundus, is said to be a papilledema.

Conditions that increase the intracranial pressure are frequently accompanied with swelling of the optic nerve. The swelling of the optic nerve is usually bilateral, but may be greater on one side. The side of maximum swelling does not necessarily indicate the side on which the intracranial disease is situated. Tumors of the frontal lobe, or tumors and inflammation of the orbit, are exceptions to this rule. Diseases of the orbit are easily excluded because of their characteristic local symptoms.

In Uhthoff's large series of cases of papilledema, he found chocked disc in the following percentages:

Brain tumor	71.0%
Cerebral syphilis	12.0%
Brain tuberculoma	3.6%
Brain abscess	2.2%
Oxycephaly	2.2%
Nephritis	1.1%
Tuberculous meningitis	1.1%
Lead poisoning	0.3%

Lawford and Edmunds called attention to the fact that papilledema is invariably severe in tumors of the cerebellum, and mild or absent in tumors of the cortical areas.

The relative absence of papilledema in cerebral hemorrhage and softening of the brain is of value in differential diagnosis.

High degrees of papilledema may be present with little or no involvement of the visual acuity. In long-standing cases, optic atrophy usually occurs and the vision becomes blurred or lost.

In all cases with papilledema, the visual fields may be of great assistance, as has already been emphasized.

OPTIC NEURITIS

Optic neuritis, with little swelling of the nerve, may accompany tumors of the brain. It is characterized by the appearance of white or grayish exudates in the substance of the optic nerve and along the blood vessels. Small flame-shaped hemorrhages are also seen. The exudates and hemorrhages are often confined to the disc, but they may extend into the retina, when the condition is termed neuroretinitis. The cause is usually syphilis; however, other forms of inflammatory disease, such as meningitis, and so forth, may be the cause. Optic neuritis is occasionally seen in brain tumors. The vision is invariably affected, the fields of vision become contracted, and blindness eventually results, following atrophy of the optic nerve. The disc becomes chalky white, the vessels contract, and the outline of the nerve head becomes indistinct.

OPTIC ATROPHY

Primary atrophy, without a preceding neuritis or papilledema, occurs in locomotor ataxia, general paresis, and other forms of neurosyphilis. The disc in these cases is bluish-white in color, the vessels remain unchanged, and the margin of the disc is distinctly seen.

One must differentiate the simple atrophy of the optic nerve of glaucoma from the forms just described. This should not be difficult, because in glaucomatous atrophy the disc is excavated or cupped.

DISCUSSION

Dr. D. O. BROWN, Santa Fe: I have enjoyed Dr. Finnoff's paper very much and should like to ask him as to the best method of examining the fundus. Also, if there is any distinctive movement of the eye that goes with post-syphilitic Parkinson's syndrome. This last winter I learned of a boy who had a little trouble which dated back to the end of the war. It appeared he had a retrospasm of the eye and the eyeball would go around and around and finally turn up. After I finally worked the case out as post-syphilitic Parkinson's syndrome, under proper treatment the muscles of the eye cleared up.

Dr. S. D. SWOPE, El Paso, Texas: I am very much interested in Dr. Finnoff's paper and think that people engaged in neurology or psychiatry can hardly do without the ophthalmologist. It is my

routine practice to send all cases to an ophthalmologist and ask his report, and sometimes the ophthalmologist sends his cases to me for some light on nerve conditions or on the matter of diagnosis of the condition he finds. I am doing quite a lot of work in the public clinics, where we have the advantage of good ophthalmologists to check our cases, and there are very few cases we do not send over to them to check. Sometimes we get reports which are not entirely in accordance with our suspicions of the case, but usually they are of very great advantage to us in making our diagnosis. To facilitate matters and check up on the clinical course, I bought an ophthalmoscope and tried to learn how to use it, and have succeeded very well in most cases. One of the unusual things I have run up against, which was very simple to the ophthalmologist but not to me, was the peculiar pigmentation of the nerve in dark-skinned people. I examined a little Mexican child sent to me and when I looked into her eye thought this was a little different from anything I had seen. The matter of the change in the activity of the muscles of the eye in Parkinson's syndrome is very interesting. Not very lnog ago one of our ophthalmologists sent me a man who could not read. He tried to fit him with glasses and, while a very able man, was unable to arrange any kind of lens that would help him to read at all. He would be able to see the first letter, but all the balance of the letters would run together. He had that peculiar cogwheel expression of the muscles which went with the masked face and paralysis agitans, as a part of his Parkinson's syndrome. I discovered the trouble and took him back to the ophthalmologist, who agreed with me in regard to it.

Dr. G. W. GRISWOLD, Roswel: I want to compliment Dr. Finnoff on the very able manner in which he has covered an extensive subject, and, speaking from the standpoint of erroneous diagnosis, recall the case of a young man, about thirty years of age, who had a very severe double lobar pneumonia, in which my colleague assured me only three small doses of ethyl hydrocuprein had been given. Within 24 hours the dimness of vision of which he complained became total and he had no light perception for fully thirty days, after which it gradually returned and he recovered. This is the only case of this kind that I have ever seen.

Dr. FINNOFF (closing): In answer to Dr. Brown's question as to the best method of examining the fundus, I think it is better to use the method that appeals to you most and the one you can master. The direct method has advantages over the indirect, in that you can see the minute changes that are not visible with the indirect method. A comparison might be made in the use of the low power of the microscope with the high power. You get a higher microscopization with the direct than with the indirect method. With the ophthalmoscope, it is very easy to master the examination of the fundus, especially with some of the newer frames, and the fundus can be satisfactorily examined with undilated pupil. In Parkinson's disease, one occasionally finds a rotary of mixed nystagmus. It is possible, with a ptosis and a mixed nystagmus, it might be due to a nucleus, which has possibly occurred from some lesion in the cerebellum. There is a marked difference in the pigmentation in persons with light complexion from those of dark skin. Those with dark complexion have more pigmentation and the contrast is very striking. The case of bilateral neuritis that followed ethylhydrocuprein may possibly have been an optic neuritis from the pneumonia and not due to the other. Usually cases of quinine blindness are permanent.

THE BACTERIOPHAGE IN THE TREATMENT OF PYOGENIC INFECTIONS OF SKIN

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(Delivered before the El Paso County Medical Society, El Paso, Texas, Oct. 12, 1931.)

The bacteriophage is a living ultramicroscopic principle which multiplies at the expense of normal living bacteria of the strain for which it possesses virulence. In doing this the bacteriophage causes dissolution of the bacteria.

D'Herelle in 1916 discovered the principle of bacteriophagy and demonstrated microscopically the bursting of the bacteria cells, apparently from pressure from within, during the process of bacteriolysis. He thought the ultramicroscopic bacteriophage bodies entered the bacteria to cause their dissolu tion from within.

The bacteriophage filtrate is prepared by introducing a small quantity of the lytic principle into an alkaline bouillon culture of the organism for which it is virulent. This is followed, in from 24 to 48 hours, by the complete dissolution of the bacteria and consequent clearing of the medium. The action of bacteriophage is specific, a race of this principle having been isolated which causes lysis of the dysentery bacillus of Shiga, another race which is virulent for the typhoid bacillus, still others which are virulent for streptococcus, colon bacillus, staphylococcus, and several others. A race of bacteriophage has been isolated, and is now obtainable, which is virulent for all strains of staphylococci. The bacteriophage is usually used alone in treatment, for the reason that it acts best upon normal bacteria, in the absence of antiseptic preparations.

The action of bacteriophage is twofold: (1) by the dissolution of the infecting organisms, (2) by stimulation of the specific resistance, due to the presence of the lysed bacterial substance in the filtrate.

The bacteriophage may be injected subcutaneously, at a distance from the lesion or directly into the lesion, or may be used as a wet dressing. As a rule, two or three injections are sufficient. If improvement occurs at all it occurs in two or three days. To be sure that one is using a bacteriophage race of maximum virulence, the causative organism may be grown in bouillon and inoculated with the bacteriophage to be used. The virulence is determined by the rapidity and extent of dissolution of the bacterial suspension, in other words, by the clearing of the medium.

Since a race of phage is obtainable which

is virulent for all strains of staphylococci the bacteriophage has been of considerable value in the treatment of staphylococcus infections. Excellent reports of this work are available in the recent literature by Larkum, Crutchfield and Stout, Alderson, Kahn, and others.

My experience with the staphylococcus bacteriophage has been with a stock preparation. In some cases the beneficial effect has been quite striking; in a number of others, it has been of apparent benefit; while, in a few cases, it has been entirely negative.

In furunculosis and carbuncle, it is usually of such great benefit that it should be the first treatment considered. In the acute stage it should be injected at a distance from the lesion, but after a pus cavity is formed, a small amount of the filtrate may be injected into this.

In acne it is of benefit only in those cases in which there is considerable evidence of staphylococcic infection. The types composed principally of comedones and papules are not influenced by the bacteriophage to any extent.

Pyodermia, sycosis vulgaris, and pustular folliculitis respond to the staphylococcus bacteriophage.

A few brief case reports will illustrate the prompt results obtained in some of the cases. As stated before, the results have not been uniformly successful, but it is evident that the bacteriophage has possibilities in the treatment of pyogenic infections.

Case 1. H. E. B. Recovering from carbuncle, about an inch and a half in diameter, on left side of neck. In spite of good drainage and application of antiseptics, there remained a small sac which continued to exude about two drops of pus on pressure, when dressed daily, for two weeks. There was still considerable infiltration about the lesion, forming a firm mass the size of a chestnut. On July 14, 1931, ½ cc. staphylococcus bacteriophage was injected into the pyogenic sac and at various points in the infiltration. On July 16 no pus could be expressed, but only a small drop of serosanguineous material. At this time ½ cc. was again injected as before. On July 18, the lesion was perfectly dry and the infiltration was much less and thereafter rapidly disappeared. This result was quite rapid and striking.

Case 2. Miss E. R. Consulted me February 10, 1931, for severe indurated acne of the face and shoulders. She received yeast internally and fractional x-ray treatments for three months, including three filtered treatments. Most of the lesions had disappeared, but a large cystic lesion on the left cheek persisted and recurred after drainage. On June 30, 1931, ¼ cc. staphylococcus bacteriophage was injected into the lesion. During the following three or four days it disappeared and has never recurred.

Case 3. H. S. Had been treated with x-ray for severe acne vulgaris, at intervals, for several months. On August 31, 1931, most of the acne lesions had healed, but a large cystic pustule persisted on the back of the neck. One and one-half cc. staphylococcus bacteriophage was injected into the arm and ¼ cc. directly into the cystic lesion. On September 2nd, the lesion was smaller; at this time it was incised and drained and again the bacteriophage was administered as before. On September 4th, the large cystic lesion had disappeared.

Case 4. F. C. Severe indurated acne of the face, with marked seborrhea. Had received several x-ray treatments, with moderate improvement. The pyogenic infection was not a prominent feature of this case, but on July 23rd there were several large, deep, cystic pustules. One cubic centimeter of staphylococcus bacteriophage was injected into the arm. On July 25th these lesions were definitely smaller and similar dose of bacteriophage was given at this time. The patient returned July 30th for observation, at which time the cystic pyogenic lesion had practically disappeared. The last injection, however, had caused a severe local reaction and, as the patient had tuberculosis, no further injections were given but x-ray treatment was resumed. After this the acne improved very gradually, just as it does under x-ray treatment, but there have been no pustular lesions of consequence. As such lesions are usually slow in disappearing, I feel that the bacteriophage was of benefit.

Case 5. E. L. Presented very large pustular lesions scattered over the legs, especially about the knees. The lesions were somewhat indurated and covered with thick crusts. Diagnosis: Pyodemia On September 3, 1931, 1½ cc. staphylococcus bacteriophage was given subcutaneously into the left arm. On September 5th, there was much less pus in the lesions. At this time 1½ cc. of the phage was injected into the right arm. On September 7th, there was still further improvement and 1½ cc. was given in the left arm. On September 11th, the lesions has practically disappeared and the patient was discharged.

SUMMARY

1. The bacteriophage is a living principle which causes dissolution of the bacteria for which it is virulent, multiplying at the expense of these bacteria.

2. It is specific in its action, a given race of the phage causing lysis of only certain bacteria, or in some cases only one or more strains of a species.

3. The polyvirulent staphyloccoccus bacteriophage, being virulent for all strains of staphylococci, has a place in the routine treatment of pyogenic infections.

This is a brief report, but it is hoped that it will stimulate interest in this new branch of bacteriology which seems to have almost unlimited possibilities for good.

REFERENCES

D'Herelle, F.: The Bacteriophage and its Behavior, translated by George H. Smith, Baltimore, Williams & Wilkins Company, 1926.

Alderson, H. E.: The Bacteriophage infections of the Skin, Arch. Dermat. & Syph. 21: 197 (Feb.) 1930.

Larkum, N. W.: Bacteriophage in the Treatment of Furunculosis, J. Michigan M. Soc. 27: 106 (Feb) 1928.

Kahn, B. L.: Bacteriophage Therapy for Pyodermia, Arch. Dermat & Syph. 24: 218 (Aug.) 1931.

Crutchfield, E. D. and Stout, B. F.: Treatment of Staphylococcic Infections of the Skin by the Bacteriophage, Arch. Dermat. & Syph. 22: 1010 (Dec.) 1930.

SOURCES OF INFANT MORTALITY IN THE WESTERN STATES

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(Read before the New Mexico Medical Society, at its Forty-Ninth Annual Meeting, at Albuquerque, N. M., May 20-22, 1931.)

In the course of a remarkable address, delivered more than half a century ago, Disraeli, far-sighted English statesman, advanced the opinion that the chief concern of a nation is the health of the people. The great empire he represented so well has translated this maxim into such concerted intelligent action that its distant dominions of Australia and New Zealand have had for a generation the lowest death rates in the world. In America, especially in this western America, while we recognize more clearly than ever before, in spite of the materialistic creed that has developed in our midst, that we are in a very real sense "our brother's keeper", no vibrant public health conscience has disclosed itself. Especially in the domain of preventive pediatrics have our achievements been relatively negligible where, from every consideration of helpfulness and dependency, they should have been most conspicuous.

It will come as a distinct shock to the thinking public of these intermountain states to learn that this favored region, "sitting eternal in the sun" and blessed by the Creator with so many other privileges and advantages denied sister commonwealths to the east, has the highest infant mortality in this country. The surprise is complete when we recall that here, where plain and mountain meet, we have a maximum of sunshine, the highest index of ultraviolet light, the lowest humidity, a population almost entirely native born; in general, good water supplies and, in most districts, a carefully supervised milk supply. There are practically no congested tenement districts, no great number of women gainfully employed, no sweat shops, no special health hazards, such as malaria, hookworm, and pellagra.

With an average infant death rate in the registration area of 66 per thousand live births, Wyoming reports 70, Colorado 91, New Mexico 145, and Arizona 133. The incongruity of the situation, not to stress its more serious aspects, is apparent when we find ourselves attempting to capitalize our climate and to proclaim the region as a health resort! Intelligent parents have learned to appreciate the value of statistics in determining the salubrity and the hazards of a given area; when they find it twice as dangerous for a baby to be born in our district as in another, that most elementary of instincts, protection of the young, will determine the matter with decision and promptness. Leading medical and sociological groups in Denver, with complete cognizance of the situation and of the inconsistencies involved, finally succeeded in initiating an intensive study of infant and maternal mortality, to continue from March 1, 1930, to March 1, 1932. The civic significance of the survey may be determined by the fact that it is sponsored by the Public Health Council comprising delegates from thirty-three professional and lay groups of Denver, including the County Society, the City and State Health Departments, the Chamber of Commerce and the Denver Sanitarium Association. Funds, to the extent of $30,000, were made available for the prosecution of this investigation through generous bequests from the Rockefeller Foundation, the May Company, the City Administration and several anonymous gifts. The chief subsidy was secured through the Bureau of Business and Social Research of Denver University, School of Commerce, whose Department of Statistical Research has complete control of the tabulations now under way.

The objectives of this serious study were, first, to determine if the mortality figures released by the census bureau were correct and, second, to determine if possible the factors which are contributing to a death rate which from every view-point is abnormal. If, for example, not all births are recorded (and this fact was established early in our survey) then the actual death rate would be reduced in direct proportion to the unreported births. While a few physicians have been remiss in this essential to vital bookkeeping, it is refreshing to note that complete cooperation of the profession, as well as of hospital superintendents, nurses, and patients, was extended in this occasionally irksome inquiry. Dr. Kaplan reports that "out of the total number of cases interviewed, exceeding 5,000, only eleven instances of resistance from patients or physicians were encountered. In virtually every one of these difficult situations, it was eventually possible to obtain a substantial portion of the information called for by the exhaustive questionnaire covering more than 150 items."

It appears to be the most comprehensive review of this character ever attempted in the United States, and it has aroused genuine interest among state and national health workers. Aside from the inaccuracy of birth figures immediately uncovered, the study has already presented many interesting fea-

tures. An analysis of the mortality data by districts, for example, reveals a striking concentration of deaths along the Platte River valley, this shallow stream running through the city near its northwest boundary. Here may be found thousands of shacks unfit for habitation, without sanitary conveniences, many with dirt floors, and with a population largely unemployed throughout the colder months. The mortality rate in these areas runs from 106 to 183 infants per thousand live births, while in the better districts, such as Park Hill, it is as low as 19. Here is a weakness which may be controlled: uninhabitable houses should be demolished and the population of this section be transferred to a more salubrious neighborhood where the city might well adopt the system now employed so extensively in Berlin, Vienna and other European centers and erect model tenements for its poorer citizens. In addition to unsanitary environment, the survey has clearly shown that economic conditions are a direct factor contributing to morbidity and mortality at the threshold of life. In families with an annual income of $3,000 or over, the death rate is 30 per thousand live births; with $2,000, the rate is 54; with $1500, it is 57; between $1,000 and $1500, it is 96; and for family incomes under $500, the rate is 170. The age of the mother is a well-recognized element in determining both infant and maternal losses. Among mothers under 20 years of age, the infant death rate was 118 per thousand; with mothers 20 to 25 years old, it was only 73; while, with those from 35 to 45, it was 121.

Confinements in the hospital sustained a mortality of 75.7 per thousand, while those in the home had a death rate of 95.4. It will be seen therefore that accouchements conducted in the home are a potent agent for increased mortality. Nor is this all. The study has shown, as expected, that prenatal care and advice, either in the clinic or at the hands of the private physicians, are vital aids in the saving of the newborn. Where no examinations had been made before delivery, the mortality was 178; with one or two consultations, it dropped to 158; with three or four visits, to 118; with five or six, to 81; with seven or eight, the death rate was only 24; and with nine or more visits, it reached the surprising figure of 15. This study embraced all economic groups.

In our work a very disquieting situation presented itself with respect to the age at death. In the registration area of the United States, and in the age group "under one month" of those babies who do not survive, the number dying during the first day is 15.3 per thousand live births: in our survey it was 32.7—a difference of 17.4. While it will demand careful inquiry over the entire period to interpret these findings, it would seem probable that registrars of vital statistics do not usually include as viable such babies as succumb immediately after birth. Figures from one day to the end of the month conform closely to the average for the country at large.

In this connection it should be noted that many women are confined by midwives, mostly ignorant and wholly untrained. The menace from this source will continue as large as the profession is quiescent and as long as laws for the control of irregular practice remain unenforced.

No consideration of death rates in these sparsely settled commonwealths can long exclude the factor of industrialism. A large migrant population is responsible for a very appreciable increase in our mortality, as shown by the survey of conditions in our sugar industry, made independently by the U. S. Department of Labor, The National Child Labor Commission, the University of California, the Colorado Agricultural College, and by numerous private agencies. It is officially recorded that in 1929 there were 20,000 Spanish-speaking laborers in northern Colorado and 4,000 sugar-beet workers in other sections of the state. Including Russians, there were about 30,000 persons employed, in a sense, as contract laborers. Much of this, of course, was child labor, as revolting as it is illegal, since compulsory school laws must be openly violated to permit children between the ages of six and fifteen to be gainfully employed. The result is an appalling death rate among women and children. In one group of 286 contract families, 187 lost 443 children, or 2.37 per family, some losing as many as nine children. In the Arkansas Valley, one group of 140 families with 1079 children showed a loss of 308, or 28.6 per cent. Flocking to large cities at the end of the season, these families swell the population of the slums, their money is soon exhausted and in many cases they become a public charge. The problem, therefore, of the migrant laborer, his care and the care of his family, demands solution.

No extensive investigation of mortality rates in this intermountain region can ignore the preponderant influence of tuberculosis. For more than half a century our territory has been the mecca for individuals, young and old, suffering from the great white plague. As a matter of fact it is questionable whether permanent settlement would have followed the passing of the hunter and the prospector without the contri-

butions of the health seeker, which have everywhere converted desert areas into busy, wholesome communities. The arrested case, apparently well but with the margin of vitality notably diminished, often makes a poor parent. Where both parents have a tuberculous history, the chances are even greater that their offspring will be lacking in physical capital; in any event, most of them will be artificially fed and their handicap still further increased. It is recognized that bottle-fed babies have a much higher death rate than those who are breast fed. If open tuberculosis is present, the newborn is exposed to a still more serious menace. So, with both the soil and the environment present, we must reckon on this extra hazard among many families where otherwise the infant would have every prospect of survival.

Further sources of our unfortunate rating with respect to losses in early life, are gastro-intestinal disorders, respiratory affections, and birth injuries, whose control must rest largely with our State Boards of Health and a more acute sense of obligation on the part of the practising physician. Certainly, if we neglect the expectant mother or deny her and her baby those measures of protection which science and humanity have built up through the ages, we have failed in a duty as vital as it is immediate and we have broken faith with the finest traditions of the race.

DISCUSSION

Dr GEORGE P. LINGENFELTER, Denver, Colo. Dr. Amesse is to be congratulated on his very interesting portrayal of an appalling condition. It is quite true that this death rate is dependent in a large proportion on the economic status of the family, but another thing we must remember is that, as a rule, this type of family is the most prolific we have. Generally it is among this class of people that cases of smallpox, leprosy, and other contagious diseases are found. Dr. Amesse spoke of diphtheria. Formerly, a great many did die from this disease, but we are getting away from it now to a very considerable extent. We have developed a method of treatment for the diphtheria carrier, who was responsible for many cases of acute diphtheria, and with this treatment we have had most excellent results. I think perhaps the only cases that do not respond to it are those in which the diphtheria bacillus has infected the sinuses. Were the nose and throat cleaned out, with no other abnormalities present, we would now be able to clear up all diphtheria carriers.

Dr. J. R. EARP, Santa Fe: I have been very much interested in this subject and have enjoyed Dr. Amesse's paper immensely. I have no doubt but that the Department of Statistical Research of the Bureau of Business and Social Research of the Denver University, which has complete control of the tabulations in connection with the survey, will publish the results when completed. The higher death rate among the poorer classes, and especially the infant mortality, is only natural, because they receive less medical care and their housing conditions are insufficient. Some years ago a study was made at Johns Hopkins of the infant mortality rate according to age groups, and it was found in that study that the younger the mother was, the less risk there was for the mother and child. There is a considerable difference between that and the Denver experience, but possibly the younger Denver mothers were among the poorer class. The Johns Hopkins series was on a smaller number of cases, however, and then, in Denver, the high infant mortality in the first days of life was attributed to the fact that they consider it a live child as soon as it breathes. I will not stop to go into that controversy as to what constitutes a live birth. We could talk all day on that subject and then not get anywhere. In New Mexico, our problems are almost entirely rural. There is so much territory to cover that we do not know what the babies are dying from, as more than half of them are never seen by a doctor before they die.

Dr. S. D. SWOPE, El Paso, Texas: I have thoroughly enjoyed Dr. Amesse's most enlightening paper. Mortality such as has been shown to us here is certainly a danger signal which we should appreciate thoroughly. Most of our large cities have made some provision for these conditions—such as the lying-in hospitals of New York and San Francisco,—but in the smaller cities and towns up to the present time there is practically no provision made by which prospective mothers of the poorer class can have intelligent attention during the confinement. We in El Paso thought we had the matter solved, having a very large population of poor people living on the south side, with high mortality among the children, we decided that by building a new City-County Hospital, we could take care of the people of the community and be able to lessen the death rate in this particular class. It seems, however, that the American public is not ready for this advancement in the development of civilization, as we put this to a vote for a bond issue, but the people turned it down. I am sure that if it were put to a vote again at the present time, notwithstanding our financial depression, it would probably be carried. Our City Health Officer is making most strenuous efforts to improve conditions.

Dr. R. O. BROWN, Santa Fe: I have been more or less interested in the mortality rates of New Mexico, because I have been on the Board of Public Welfare. There are conditions in New Mexico which seem to make it absolutely impossible to guarantee a physician for every woman about to become a mother. I am wondering if any comparison has been made in Denver as to the death rates between women attended by physicians and those attended by midwives, and if there ever has been a correlation of the data on statistics as to what is considered a live birth and what is a still birth.

DR. C. F. MILLIGAN, Clayton, N. M.: Over in our district we have very poor people but our death rate is about the same as in other sections in the country. In my opinion, the high death rate is largely due to lack of education of the public and, perhaps, a lack of interest on the part of physicians in taking care of these cases. Many times midwives are engaged who can neither read nor write, and the doctor is not called in until something goes wrong, when it may be too late. We could possibly have more of these women taken care of by physicians, if we went about it in the right way, but many of the doctors are specializing and are not particularly interested in prenatal care.

Dr. R. W. MENDELSON, Albuquerque: We owe Dr. Amesse a vote of thanks for his very interesting paper. There is one difficulty in the way of educating the public, in that some people are too dumb to be educated. Therefore, they should be submit-

ted to race regulation. The death rate Dr. Amesse mentions calls to mind the death rate we have in the tropics, where in some places it runs as high as 400 and in others to 150 per thousand. In the City of Manila it is much less now, but for the whole Philippines it will probably run from 150 to 200 per thousand. Yet that is not so bad considering the fact that they are sitting on top of the equator. Comparing these death rates with the rate Dr. Amesse has called our attention to, it looks as if we are very lax in our own United States, with such a high degree of so-called civilization. I am very strong for taking this proposition of childbirth out of the hands of the midwife. If we could stop this class from the work of practising the healing art, we might get some place.

Dr. F. D. VICKERS, Deming, N. M.: I have been interested in looking into the records of the graduating classes of the various medical schools and can see more and more the passing of the family physician of the old days. Fully 50 per cent of the graduates of medical schools now fit themselves to become specialists, before leaving college.

Dr. AMESSE (closing): I am grateful for this generous discussion of the subject. In illustration of the tendency of young medical graduates to specialize, an incident happened at Denver College a week or so ago, that may be worth relating. Among the number of young men who expressed determination to become specialists was one serious-minded individual who, when asked his intentions, said he was going to specialize, and when asked in what, replied: "Well, since it looks as though everything else has been taken care of, I will specialize on the nostril." "Which one?" he was asked. The three most important things responsible for the high death rate are ignorance, poverty, and neglect. As to the question of Dr. Brown about the relative death rates of those cared for by midwives and those cared for by physicians, it is exactly the same. However, a midwife will carry a woman on to the point of death and then call in the doctor, so she is indirectly responsible. She will carry a labor case to a point where no man can save it and then call the physician. This is entirely an educational problem and when you cannot educate a person, then you are strongly inclined to use a club.

AVERTIN ANESTHESIA IN OPERATIONS ABOUT THE HEAD*

M. P. PALMER, M. D.
El Paso, Texas

(Presented before the El Paso County Medical Society, Sept. 14, 1931.)

For many years one of the major problems facing the surgeon called upon to operate about the head and neck, has been that of selecting a satisfactory anesthetic. Ether and other gaseous substances have been most unsatisfactory because of the mask's interfering with the field of operation and the danger of infection being carried into the wound by the anesthetist. Nitrous oxide and ethylene are particularly unsatisfactory in surgery of the mouth because of their transitory action, the patient recovering consciousness soon after the mask has been removed to allow manipulation. Further more, in surgery of the upper respiratory passages there is often considerable secondary pulmonary reaction which should not be aggravated by the use of an inhalation anesthetic.

Since the increased popularity of diathermy and cauterization in surgery, it has been necessary to search among the non-explosive substances for an anesthetic. This has been particularly desirable in head surgery, as there it is impossible to shield off the mouth to minimize the danger of accident. This, more than any other single factor, gave impetus to laryngologists in their search for a more satisfactory anesthetic agent.

Laryngologists have always been to the fore in experimentation with local drugs, but these in many cases have not proved satisfactory, due to the difficulty of obtaining adequate anesthesia, the severe shock in some of the more major procedures, and the great apprehension on the part of the patient.

Considerable work has been done with Gwathmey's[1] sup[2] synergistic method, which consists of intramuscular injections of morphine and magnesium sulphate supplemented with an enema of ether and paraldehyde in olive oil. In many cases this proved most satisfactory, but occasionally the patient remained refractory, relaxation was poor, and the danger of explosion when using the cautery, while minimized, was not totally eradicated. Also, the ether suspension proved very irritating to the rectum, in many cases leading to gross pathological changes. For these reasons this method has largely been discarded.

During the past five years, a drug has been placed on the market which seems to fulfil all the requirements as an ideal anesthetic in our field. This is tribromthonall, or avertin. This substance is administered by rectum, is non-irritative, is totally eliminated by the kidneys, does not to any extent alter blood pressure or respiration, has no deleterious action on the heart or lungs and in no wise interferes with the field of operation.

This drug was originated and extensively used in Germany[3] before its introduction in this country. Before 1928 over one hundred thousand cases were reported without ad-fatality, showing that, when properly administered, this is not attended with any more danger to the patient than are the more commonly accepted anesthetic agents. There is now available a rather extensive American literature on this drug, so I will not go into the pharmacology of the sub-

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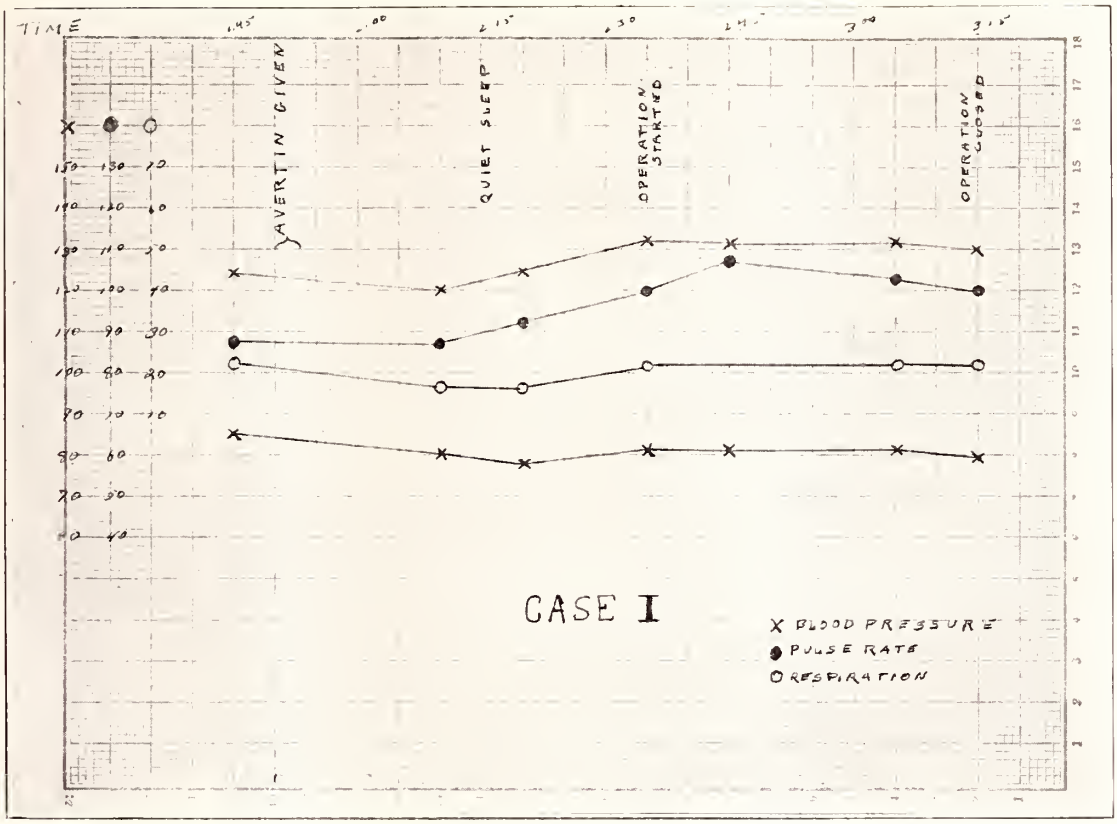
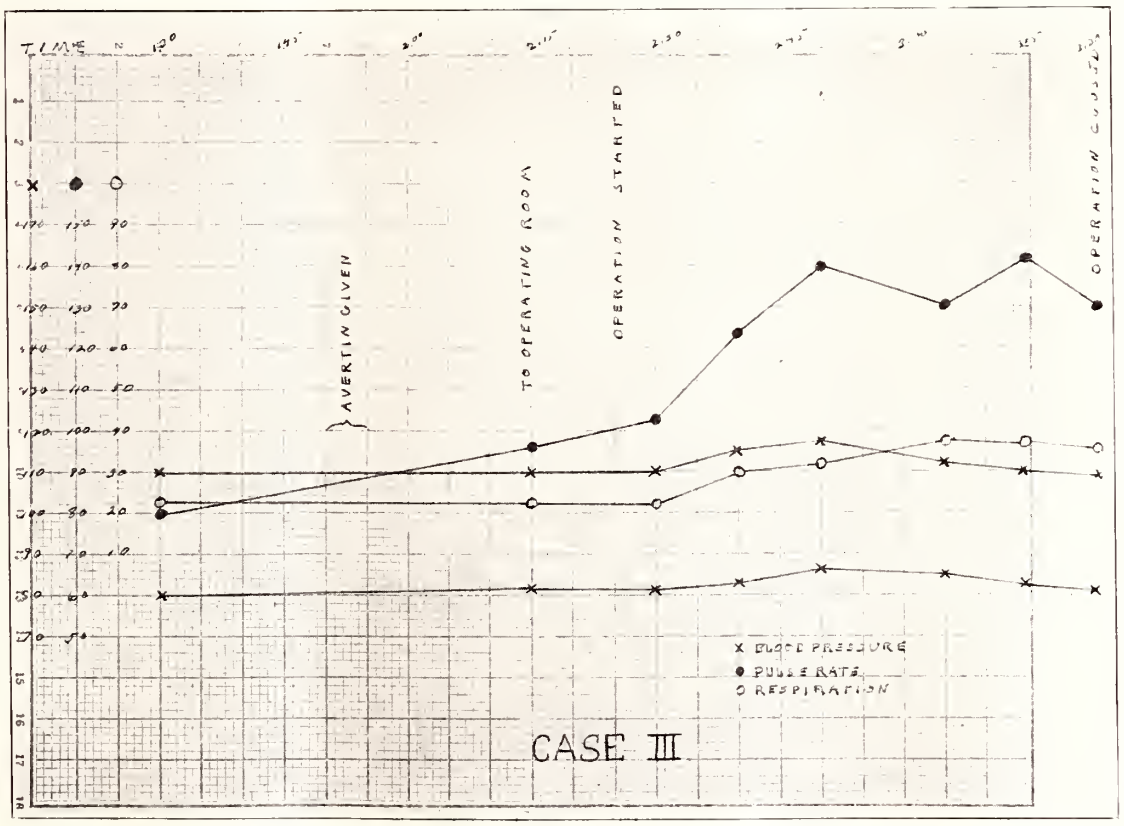

TIME
AVERTIN GIVEN
QUIET SLEEP
OPERATION STARTED
OPERATION CLOSED
CASE I
X BLOOD PRESSURE
PULSE RATE
RESPIRATION


TIME
AVERTIN GIVEN
TO OPERATING ROOM
OPERATION STARTED
OPERATION CLOSED
CASE III
X BLOOD PRESSURE
PULSE RATE
RESPIRATION

stance but will content myself with giving a general account of a few experiences which may prove of larger interest to the general surgeon and internist.

In our work with this drug, we experimented considerably, endeavoring to determine the smallest dose which would give good surgical anesthesia in the average case. Our early work was done with dosages of 90 to 100 mg. per Kg. of body weight. We found that this was not sufficient to give anesthesia in the majority of adults. Therefore, we gradually raised the dosage until we were giving 125 mg. per Kg. body weight. This was found to be the optimum dose in the majority of subjects. In certain cases it was necessary to use supplemental anesthesia, either local or ether; in the few cases in which this was required we found the amount to be very small, an average of around one ounce of ether sufficing for major operations. This usually was necessary only early in the operation and in most cases was soon dispensed with. This dosage is about twice the amount recommended as a basal anesthesia, but our object was to secure full surgical insensibility and not to discover some new form of preoperative medication.

We first used the crystalin avertin, but, as soon as it was made available, we substituted the 100 per cent solution in amylene hydrate, because of its ease of preparation. We were unable to distinguish any difference in the action of the two forms of the drug.

Elderly and cachectic individuals respond to much smaller doses of avertin than do healthy young adults. In such cases we obtained very satisfactory results using as little as 100 mg. per Kg. of body weight. Our poorest results were obtained in children, as they required very large doses and in many cases we could not get them anesthetized with the amounts we cared to give. We found that they required about as much ether to allow manipulation as if no premedication had been given. Because of the unreliability of the results in children, we early discontinued our work with them.

The diabetic is considered a very poor risk for surgery with the more commonly used general anesthetics. We had several cases in which a careful check of the blood sugar failed to show any changes following operation, which would suggest that avertin was harmful in this condition.

CASE REPORTS

Case 1. E. E., July 16, 1929. Mastoidectomy, an extremely rapid breaking down of mastoid in a severe diabetic, the whole process occurring in ten days.

1 p. m., morphine gr. ¼, atropin gr. 1/150, 1:50, avertin Gm. 6; 125 mg-Kg. Patient was asleep with perfect relaxation in ten minutes.

2:34-3:15, very extensive mastoidectomy, cells completely broken down and the tip sequestrated. Patient reacted on leaving table.

7:15, completely awake, slept well.

There was slight motion of the head during the initial incision, otherwise perfect relaxation and control. Respiration was unchanged throughout, the blood pressure varied less than ten points and the pulse rate went up fifteen beats during the initial incision, but rapidly fell to the preanesthetic level. Blood counts made before, immediately after operation, and next day, showed variations well within the bounds of experimental error. Convalescence was uneventful. Particularly noteworthy is the fact that the patient suffered no postoperative pain or discomfort and slept very comfortably the first night, without opiates. It is of interest to state that two years following this operation the other side became involved and another mastoidectomy was performed with avertin, giving just as happy results as in the first case.

Many patients, especially those of a neurotic temperament, are more in fear of the anesthesia than they are of the operation itself, and a certain amount of surgical shock may well be due to fear and fighting the anesthesia. Any substance which will produce surgical anesthesia in the quiet of the subject's room without his realizing the fact that he is becoming narcosized is a very valuable adjunct to successful surgery in such cases.

Case 2. A very neurotic woman suffering from repeated sore throats, showing hypertrophied tonsillar tags, refused to submit to operation under local and had previously had a very unpleasant ether anesthesia.

8:50, with no premedication, 7.32 Gms. of avertin were given rectally; the patient, being under the impression that it was only a cleansing enema, went to sleep in fifteen minutes.

9:15, tonsillar tags were dissected out; 10:15, patient reacted; 12:30, fully awake.

The blood picture showed no changes after operation. Bleeding was about the same as one encounters with ether and much less than with nitrous oxide. The patient awoke as from a normal sleep and stated that she had had no unpleasant sensations of any kind.

An operation impossible to do with local anesthesia and extremely dangerous with an explosive gas, is illustrated by the following case.

Case 3. W. W., male, 48 years. Squamous cell carcinoma of the external auditory canal.

1:15, morphine gr. ¼; 1:47, avertin 8.84 Gm.; 130 mg-Kg; 2, asleep.

2:35 operation started. Simple mastoidectomy to make sure of no bone involvement, the whole cartilagenous canal cut out and operative field burned out with the actual cautery.

3:30, operation closed; 6:45, patient reacted.

Blood pressure and respiration remained level, while the pulse rate rose to 130. The patient was completely anesthetic throughout the operation, not even reacting during the cauterization.

We had several cases of emergency operations in patients suffering from acute upper respiratory affections, which would have been extremely poor risks for inhalation anesthesia. Avertin used in these cases in no wise aggravated the pulmonary condition. We believe that this drug should find an ex-

tensive use in operations on tuberculous individuals, as it not only causes no insult to the lungs, but also avoids the extreme shock of local anesthetics in major operative procedures.

In several of our cases complete surgical anesthesia could not be obtained with the doses of avertin which we were using; in these, a small amount of ether gave immediate relaxation. Occasionally the subject would groan and appear to be in pain, but after recovery they all stated that they remembered nothing of the operation, often refusing to believe that there had been any surgery or that they had even left their room, the amnesia being much more complete than that obtained with large doses of scopolamine.

Blood pressure, pulse, and respiration readings were taken at fifteen-minute intervals during the operation and for some time before and after. It was noteworthy that they remained practicaly level, suggesting that this is an excellent agent to use in cases showing marked cardiac and vascular damage. The fact that the blood pressure does not fall with this drug is a large point in its favor over either spinal or sodium amytal anesthesia. Blood counts showed no alteration following the use of avertin.

We do not advocate the indiscriminate use of this drug in all anesthetics. Cases should be selected largely on the basis of contraindications for the ordinary agents. I have outlined above several conditions in which we believe this to be preferable to either ether or local. It is especially indicated in extensive procedures about the head where, either through interference with the field or chance of explosion, the gaseous anesthetics are dangerous.

In our series of cases, we discovered several factors which we consider to act as contraindications to the use of this agent. Children do not take kindly to avertin, they do not react well to the doses which we were using. Because the physiological action of this drug is very similar to that of ethyl alcohol we had little success in inducing surgical anesthesia in chronic alcoholics. Avertin is detoxicated in the liver and excreted by the kidneys, therefore we refrained from exhibiting the drug to subjects with gross damage of those organs. Following two unfortunate incidents in patients with marked laryngeal stenosis, who were deeply cyanosed and breathing with their accessory muscles, we decided that this drug should not be used in such cases, as it gives such profound anesthesia that it removes this accessory action and threatens the life of the patient.

The majority of work recently published suggests that avertin should be used only as a basic anesthesia, so used it serves a certain purpose in alleviating apprehension, and requiring the use of less ether. But in using it for this purpose the main advantages of the drug are eliminated. We attempted to cut down our dosage but found that the effect was not satisfactory. Our best results were obtained with a dosage of 125 mg. per Kg. of body weight. This is far below the experimental minimal lethal dose. The highest dosage which we have personally observed was 187 mg. per Kg. In this case anesthesia lasted for eight hours, at the end of which time the patient awoke as from a normal sleep and showed no ill effects from his experience. This gives us a larger margin of safety than obtains for several of the more commonly used anesthetics.

CONCLUSIONS

1. Avertin is indicated for anesthesia in many operations about the head which would prevent great obstacles to the successful use of the more common anesthetics.

2. The use of avertin is indicated in certain pathological conditions which contraindicate inhalation anesthesia.

3. Avertin may be used in doses sufficient to give full surgical anesthesia and yet retain an adequate margin of safety.

REFERENCES

1. Gwathmey, J. T.: Anesthesia, 1924, McMillan Co.

2. Beck, Pollock & Lederer: The Laryngoscope, March, 1925.

3. Guttman, J. R.: Annals of Surg., Sept., 1929. Review of Literature (W. Asschutz, K. Specht & F. Tiemann) Ergebn. d. Chir. u. Orthop. 23: 406-605. 1930.

DISCUSSION

Dr. J. L. GREEN: I believe it might be well to recall that on Nov. 8, 1930, in the American Medical Journal, there was a preliminary report by the Council on Pharmacy and Chemistry of the American Medical Association, which report was not entirely satisfactory. It stated they were delaying decision on the anesthesia because of several factors. It appeared that, after its introduction in Germany, there were quite a number of deaths reported and following severe criticism by numerous surgeons at a meeting of the Congress, it was temporarily withdrawn by the manufacturers. They showed that it depresses the respiratory center and has some bad effects on the liver. While it gives a beautiful basal anesthesia, it has added disadvantages in that the aqueous solution is prone to decomposition and this decomposition is, perhaps, the cause of some of the fatalities reported. It might be well to proceed with caution before we accept this or any new drug.

Dr. W. E. VANDEVERE: Dr. Palmer has done some very interesting work with this anesthetic. If it can be controlled, there are cases where it would be of special value, particularly in papilloma of the larynx. To remove such papillomas, I like

to use cautery, but do so with fear and trembling, on account of the ether. I saw Dr. Lynch have a couple of explosions doing this type of work and he finally began using an electric fan to fan away as much of the ether as possible and then did the cautery, but even then there is a certain element of danger. I wonder if Dr. Palmer has had any experience in using this anesthetic in cases of laryngeal growth.

Dr. PALMER: In answer to Dr. Vandevere, we had two cases in which laryngotomy was done under avertin, one of which was carcinoma of the larynx. The patient was in poor surgical shape to start with and it was most unfortunate. We have selected our cases since then. Wherever there is free airway, we feel perfectly safe in using avertin. With reference to the preliminary report mentioned by Dr. Green, I do not know why this was given out. The Council seemed to think the chief thing against the drug was that there had not been sufficient tests made. We did some of the earliest work in Chicago with the crystalline substance, which was brought from Germany. I do not understand exactly where they find the heart action is suppressed because all of our cases showed, if anything, there is a very slight rise in blood pressure. The fact that the substance deteriorates, or has been found to deteriorate, occurs only when made up in aqueous solution. We always test it in a solution of Congo red first and if there has been any deterioration, this would turn blue. In our opinion, avertin has a very valuable place in the hands of the surgeon.

A VISIT TO MAYO CLINIC

W. L. BROWN, M. D.
El Paso, Texas

(Read before the El Paso County Medical Society)

In a trip to Mayo Clinic via Chicago, on the Northwestern Railroad, one comes in contact with it upon entrance to the depot for the evening train to Rochester. There is a hospital car leaving the Northwestern Depot each eveing, which is cut out at Rochester and returns the following night. This car has been especially adapted by the Pullman Company for receiving stretchers through the side doors instead of through the vestibule or window, as formerly. Instead of the berths being on both sides of the car they are on one side, so, when the stretcher enters the side door, it goes directly into a compartment. These compartments have upper and lower, toilet facilities, and so forth.

Medical men who have reservations in this car have no trouble finding it, as, painted on the side, in the usual space occupied by the name of the car, is the simple name of Joseph Lister; not Lord Lister.

The first thing that strikes one who has seen the clinic grow almost from its beginning, is the present new office building—a magnificient structure, some thirteen or fourteen stories—which is the largest and most modern physicians' office building in the world.

On top of this office building is a set of very fine chimes that plays each evening and can be heard over the entire town. One of the bells weighs 7000 pounds, and they were especially cast in Scotland, a donation of art by the Mayo Builders to the home town and only one of the many donations showing their loyalty and affection for their homefolks.

All the downtown hotels and hospitals are connected by beautiful tiled subways, steam-heated, indirectly lighted, and full of signs giving you directions to find your proper destination—about one mile of subways. There are eight buildings, all told, connecting.

The mechanical conveniences of the new office building have made it possible for patients to get through the clinic in practically one-half the time it formerly took—for instance, there are mechanical carriers from the history room to all the floors of the building, whereby a history called for can be delivered in a matter of two or three minutes. These histories are kept going from department to department, as needed, without causing loss of time. Histories are carried from the filing room through pneumatic tubes to the various hospitals—to the main hospital, St. Mary's out at the edge of town, histories go in two minutes or less; to downtown hospitals it is only forty-five seconds.

The elevators in the new clinic building, after the door closes, give no sentation of moving. You are surprised after standing a few moments to be let out at the twelfth floor.

On the top floor of this building is a large assembly hall for use of staff meetings and other gatherings which may be appropriate.

A large painting of Dr. Will and Dr. Charles hangs on the wall in this room. Occupying the greatest place of prominence is a painting of their father, to whom, on every occasion, they give full honor for a great heritage.

Dr. Will and Dr. Charles, of course, still have offices in this building, but neither is engaged in active clinical operative work. In one of the approaches to Dr. Will's office, you go through the Directors' room, which contains a beautiful mahogany table surrounded by chairs for eight. It is here the Directors meet to discuss the institution's welfare.

The walls of this large room are completely covered by framed degrees of honor, diplomas and all sorts of honorary bestowals. They are from the King of England, down through practically all the foreign countries of the world; and degrees without end from all colleges of the world.

Passing from this room into a little hall leading into Dr. Will's office, is a smaller room with glass cases along the sides, such as display cases, containing caps and gowns of all sorts, kinds and descriptions, dozens and dozens, that they have worn during the ceremonies of having these degrees conferred—on one side are those of Dr. Will's and on the other side are those of Dr. Charles'.

Each evening at five o'clock as the Clinic's business closes, there is a tour through the building, accompanied by a guide; at least seventy-five peop'e composed the party the evening I went through. This is very appropriate for the visiting doctors as well as visiting patients, who have a desire to look through the building and to know something of its work.

The striking feature of the scientific surgical end of the clinic is that it is manned thoroughout by young men. When one sees these men do ten or twelve major operations in a day, one wonders how they can have physical strength to do this day in and day out; but few of them, if any, operate each day as a regular routine.

In the earlier days of the clinic, however, Dr. Will, Dr. Charles, Dr. Beckman, Dr. Judd, and others, did as many operations each forenoon every day, as well as put in the afternoons either operating or working in the clinic. In addition to that, they did much more teaching than the younger men are doing today, and this is made as a constructive criticism of the clinic.

During my recent visit at the clinic, Dr. Charles Mayo was away and Dr. Will Mayo appeared in the surgical clinic as surgical consultant. Dr. Charles also does this when he is at home. He comes into the clinic where the younger men are operating and is often told something of the problem they are up against in the particular operation. He still has the same capacity for clear thinking and statement of facts of practical utility.

In the surgical clinic one fails to observe any striking changes that have occurred in the past five years. There are, of course, numerous ones, but not in any way radical.

Spinal anesthesia is enjoying popularity there, just as it is over the entire country. I suspect, however, that it has reached its high point of popularity and will soon be on the decline. Of course, it is given there under the most favorable circumstances, by specialists who do nothing but give spinals, sacrals and locals.

At St. Mary's hospital, the largest, there are two rooms, in connection with the operating suites, where patients are taken to be given their spinals, sacrals, blocks and locals, and they are taken from there into the operating rooms. So, you see, their work is being done under the most favorable circumstances and, if it does not prove successful there, it could not possibly be successful elsewhere.

Dr. Judd made the statement that any anesthetic that would knock the blood pressure from 200, 190, or 180, suddenly down to 90, was not physiological and he could not believe that such a thing could occur without danger. I think this definitely marks the beginning of its lessened popularity.

They do sacral anesthesia on all hemorrhoid and rectal work and with the patient on the stomach in a reversed Trendelenburg position. This gives access to the rectum, both as to operating and examining with a speculum.

They have made very great progress in the x-ray of the sigmoid and colon by first giving barium enema, allowing it to pass, and then distending the colon with air. A stereoscopic picture is then taken. Polyps, early cancers and other ulcers, retain the coating of barium after the normal mucosa has been cleared, and these foci are brought out very clearly with stereoscopic picture.

Stereoscopic pictures of the sigmoid permit following loops of bowels very much better than in a flat picture.

Each operator has an operating suite of two rooms with two operating teams, so that he doesn't have to make the incision or close it. In this way he may do more operations. It seems that most of the operators are using wet gloves again; I did not learn the reason for this.

Some five years ago,during a visit of mine to the clinic, Dr. Judd was doing all of the reasonably clean cholecystectomies without leaving any abdominal drainage. He stated that, for some reason, these cases seemed to make better convalescence, but did not know why. During my visit this time I didn't observe a single gallbladder operation closed without drainage. Upon inquiry, I was told that drainage is regular routine now—that would seem the logical thing to do.

The long abdominal incision is established permanently, and dissecting the fat back on each side of the incision after the fascial layer is reached and before it is incised, prevents the fat from coming into the line of suture during closure. This seems to be a very important point.

In operation for cancer of upper rectum, left inguinal colostomy is always done, bringing the proximal end of the bowel down

into the opening and closing the distal end, leaving attached to the abdominal wall at the site of the colostomy. Some three weeks later, the section of the rectum is carried out from below, as far as possible, then the abdomen opened and the resection completed.

Dr. Mason does all his perineorrhaphies with catgut alone. He states that postoperative bleeding after hysterectomies practically always comes from uterine artery.

The removals of the lumber sympathic ganglions for arthritis and circulatory disturbances of the lower extremities, are beautiful operations when done by a perfect technician.

Dr. Adson and his assistants are doing work on the nerves and brain that is more difficult and technical than any other branch of surgery that I have observed.

I saw Dr. Craige do a lumbar sympathectomy operation on both sides at the same time and it was a masterpiece of surgery done in a masterly way.

I think the greatest advance is the greatly improved technic of surgery of the large bowel. Aseptic resection has proved entirely successful and reduced mortality very perceptibly. This is done by crushing clamps, doing all the cutting with a cautery, and making anastomosis with both openings in the bowel sealed; following the crushing, then cauterization, thereby making a complete aseptic anastomosis.

I didn't see a section of the sternomastoid muscle in any goiter operation while there, that is not done as a routine. I think a highly developed technic makes it possible without that step.

The Judd method of removing the gall-bladder beginning at the cystic duct, seems to be an adopted standard technic and is deviated from very seldom, though at times, in certain cases, it appears to the observer that the opposite technic would be more desirable, especially for the average operator.

They still have the most rapid method of getting reports on tissues removed. In one particular case, where a tumor of each ovary was removed, the report was back in four minutes, and both were malignant.

The clinic is still growing, the physical plant is constantly improving, and the group of operators are young, strong, enthusiastic hard workers, but one misses the teaching and, for that reason, a certain amount of inspiration that one received from the founders of the clinic.

As this is now a "world institution" it is to be hoped that this defect will be remedied and the clinic thereby may be able to give the greatest measure of its usefulness to the profession the world over.

COMMON MISTAKES IN THE REMOVAL OF FOREIGN BODIES IMBEDDED IN THE CORNEA

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(Read before the El Paso County Medical Society)

The object of this writing is to attempt to set forth certain mistakes which are frequently made in the ordinary case, consulting the general practitioner in the more rural districts or the ophthalmologist in the urban centers, with the complaint of having a foreign body in the eye. A simple commonplace occurrence in the daily office practice, yet, what we consider a very important subject. There is little doubt from observation of post-foreign-body cases, that the majority of us regard too lightly the removal of a small particle of foreign matter from the corneal surface. The result of this slight regard is a rough removal, with subsequent nebular formation which, if located over the pupillary area, may impair vision to a large degree. The majority of us relieve our feelings, if a scar formation occurs, by telling the patient that he delayed coming to our office too long, having developed, prior to his visit, a small ulcer which was responsible for this nebular formation. However, it has been our experience that the patient with a foreign body imbedded in the cornea wastes little time in consulting the physician or surgeon. There are certain definite principles which are given in all current books of opthalmology and which are known by all but which are not infrequently improperly applied. The problems which confront us when presented with a case of this type are:

1. (a) Impairment of vision. It should be a routine practice to take the vision of all patients complaining of a foreign body in the eye, before its removal. This is of importance in the prognosis as well as a precautionary measure for future reference. We see many contentious patients who, having had a small foreign body removed, complain of faulty vision following its removal and who, upon examination, show the same vision as before removal. This record prevents arguments and sometimes legal entanglements; whereas, if the vision had not been taken, we should have no record to prevent these. Should a patient be suffering a great deal of pain with blepharospasm and tearing, we suggest the instillation of two or three drops of 2 per cent holocaine before taking the vision. The reason for doing

this is obvious, as the tearing, blepharospasm, and so forth, would interfere with the vision to a marked degree. At this point ophthalmoscopic examination should be made to determine if hemorrhage, lens injury, and so forth, are present.

(b) The Composition of the Foreign Body. The most common foreign bodies are: sand, cinder, iron, coal, ashes, dust, wood, emery and steel. The composition is important from the standpoint of prognosis on the reaction of the eye to a foreign body. As we all know, steel particles or metallic particles of any kind are poorly tolerated by the cornea and

Fig 1 Single ulcer surrounding F.B.

Fig 4 Showing linear incision of cornea.

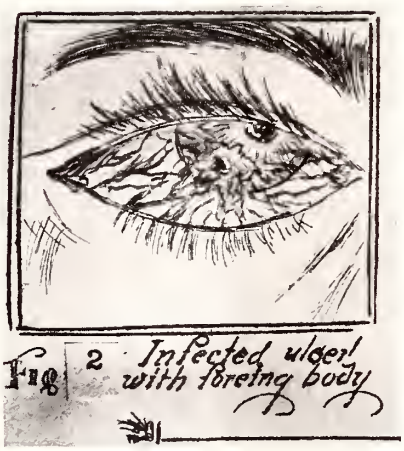

Fig 2 Infected ulcer with foreign body

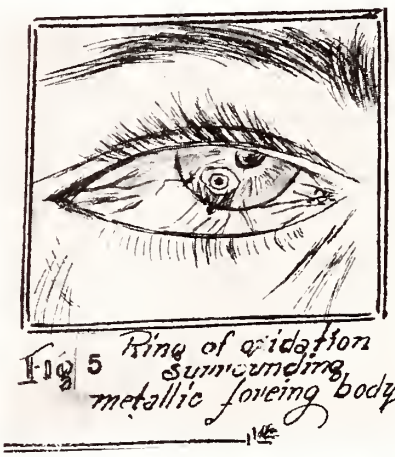

Fig 5 Ring of oxidation surrounding metallic foreign body

Fig 3 Removing deeply embedded F.B. from cornea.

Fig 6 Showing tightly applied bandage.

even though the foreign body has been dislodged, if the metallic ring of oxidation is present, there is generally a very violent reaction. (Figs. 1, 2 and 3).

(c) The Contour of the Foreign Body and the Depth of its Penetration. The shape is important in the selection of the proper instrument for its removal. If it is circular and is imbedded only in the epithelium of the cornea, it is easily removed with a blunt foreign-body spud. However, if it is of irregular contour, a foreign-body gogue is the ideal instrument, as the V-shaped niche offers resistance and certain grasping power. If the foreign body has penetrated more deeply into the corneal layers, extending into the tunica propria, the removal is rendered more difficult and, of course, a thin foreign-body needle-knife is used. The purpose of this procedure is aimed at the conservation of corneal epithelium. Above all, the pernicious practice of attempting to wipe a foreign body from its position by means of a probe or applicator wrapped in cotton, is to be condemned. This procedure almost invariably results in the destruction of a large area of corneal epithelium and offers a larger port of entry for infection, whereby an ulcer of the cornea may develop. We see this demonstrated almost daily by some workman who has attempted such means of removal and occasionally is responsible for a large infected ulcer of the cornea.

(d) Whether or not there has been a Subsequent Ulcer Formation. This is of importance as a certain amount of necrosis of corneal epithelium takes place; which, of course, alters the prognosis as to the amount of scar formation which will result. In all foreign-body cases, but particularly in those of ulcer formation, strict adherence to the principles of asepsis must be observed. Metallic foreign bodies which have been embedded in the cornea for a period of more than six hours, usually become more or less oxidized, leaving a stained margin surrounding the ulcer following the removal of this foreign body. This should always be removed as it hastens healing to a marked degree. This oxidation product of the metal is toxic to the corneal epithelium. (Figs. 5 and 6).

2. The Use of the Proper Anesthesia. The choice of an anesthetic is a matter of vast importance. Never should an attempt be made to remove any foreign body, regardless of its size or position, without a proper and complete anesthesia. Cocaine and butyn, 2 to 4 per cent, are mentioned only to be condemned. We, personally, have discontinued the use of these anesthetics, as we find there is a marked softening effect and dehydration produced, which is evidenced by generalized staining of the cornea when fluorescein is used following the use of the former. The anesthetic of choice and the one which we have found does not produce this effect, is holocaine, used in either a 2 or 4 per cent solution which is rendered alkaline by the addition of sodium bicarbonate. Instillation of two or three drops is made at minute intervals and, usually, complete anesthesia is produced with from three to five instillations. This anesthetic can be used more abundantly than can cocaine, as it does not produce any toxic effect. We have found it highly satisfactory in being free from the softening and dehydrating effect of the two formerly mentioned.

3. The Selection of the Proper Instrument for Removal. As mentioned earlier in the discussion, if the body is only imbedded in the epithelium, it is easily removed with a blunt foreign-body spud. However, if the foreign body is more deeply situated in the corneal structure, not reaching the posterior layers of the cornea, we suggest the use of the V-shaped foreign-body gogue, as this offers more resistance and therefore more grasping power. If the foreign body is located deep in the corneal structure, then, of course, the use of a foreign-body needle-knife facilitates the removal with less destruction of epithelium than any other means of removal. All these procedures are aimed to prevent destruction, primarily, of the corneal epithelium over a large area. This may be compared with the destruction of a large area of skin over the body surface necessitating a skin graft; whereas, if the wound is linear, regardless of its length, it heals rapidly and with little scarring. This applies to the corneal surface. If the wound can be sharply defined and is more or less linear in outline, there will be little scarring and the healing will be more rapid, as it does not necessitate extreme proliferation of corneal epithelium.

4. Staining and Instillation of Ointment. As to the matter of staining, we have found the use of 2 per cent solution of mercurochrome superior to fluorescein. It not only stains the denuded area, but, in so doing, prevents, to a certain extent, the subsequent infection. We find no difficulty in determining the degree of the abrasion by using this method of staining. The patient is given some ointment to be used in the eye at home and it is used in the office before the bandage is applied. We, personally, favor the use of 1/5000 bichloride of mercury ointment. It does not have the irritating properties of

the other antiseptic ointments. The instillation of ointment is a tedious procedure if carried out in the proper manner and it is important that it be retained in the cul-de-sac when the lids are closed, as this prevents the further denudation of the corneal epithelium by the movements of the globe beneath the closed lids. If the ointment is simply allowed to close, it is always pushed out of the cul-de-sac. However, if the cilia of the upper lid are grasped with the fingers and the lid pulled away from the globe, the ointment being instilled and the lids closed as in the removal of a speculum, the ointment will be retained in the cul-de-sac. Care should be exercised as to loose cilia falling into the cul-de-sac, as one loose cilium may destroy as much epithelium as the eye will be able to replace in twenty-four hours, resulting in a lot of irritation and discomfort to the patient.

5. Bandage. Regardless of the size, position or depth of the foreign body, one should insist on covering the eye for at least twelve hours. The reason for this is obvious. There is a denuded area of corneal epithelium which is susceptible to infection, irritable to light, and these apt to be increased by movement of the lids. The patch is the most commonly abused adjunct in the treatment of these cases. We prefer to use the term bandage, as patch is suggestive of incompleteness. The bandage should be applied so as entirely to immobilize the lids. If the bandage is loosely applied, allowing mobility of the lids, it is better to be without it, as the only effect, when applied in this manner, is to rub the cilia loose and push them into the eye. In applying the bandage properly, the gauze beneath must be thick enough so that it is higher than the brown margin. Adhesive strips are so placed as to slightly wrinkle the skin about the orbit, for if this is done, certainly, the bandage will be held firmly over the lids, allowing no movement of them. (Fig. 4).

6. Post-Foreign-Body Examination. Slit-lamp examination in post-foreign-body cases shows some extremely interesting phenomena. Cases which have been followed from the entrance of the body in the cornea to a period of from three weeks to three months following same, show definite corneal changes. If the body has been superficial and imbedded only in the corneal epithelium, little scarring remains, the only visible results being a slight disturbance of the stroma. If, however, the body was more deeply located in the stroma, there appears to be a large proliferation of connective tissue fibers, with some remaining capillary areas, and a certain amount of edema of the endothelium underlying it, which is present many weeks after all symptoms have subsided and the cornea appears entirely healed. If there has been ulcer formation either before or after removal of the foreign body with a protracted time of inflammatory reaction, microscopic vascularization takes place from the limbal loops of the conjunctival vessels penetrating deep into the stroma. Later, when the inflammatory reaction subsides and healing takes place, there seems to be a transformation of the capillary system into connective tissue. Whether this is a retrograde metamorphosis or not, it is seen actually to happen. Later, clear areas appear interposed among a sort of agglutination or scar-tissue patches in a checker-board fashion. These small areas give a definite "glint" resembling the so-called "calcareous inscrustations". In these cases the interstitial scar which, when newly formed, appears flattened and dense if observed by slit-lamp microscopy several months later, will show ectatic areas underlying which there is a marked thickening of the cornea producing corneal astigmatic errors. This ectatic formation has been explained as attributed to insufficient nutrition of the dense cicatricial tissue by the normal circulation of the cornea.

This subsequent traumatic corneal astigmatism, combined with the nebular formation, will produce grave errors in vision which may inhibit the recipient from obtaining a position with many of our modern industries where perfect vision is of primary importance.

Some may think this a very elementary subject, presented in a very elementary manner; yet, if I can only impres upon the profession the seriousness which may, and at times does, result from such a simple thing, then, I will feel that my purpose has been accomplished.

THE LABORATORY DIAGNOSIS OF SYPHILIS*

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*(Summary of an address before the Montefiore Hospital, Pittsburgh, Pa., April 8, 1931. Reprinted from the Journal of Chemotherapy for October, 1931. This article answers so many of the questions being constantly raised by clinicians regarding the laboratory tests for syphilis that it is reproduced here without abridgement.)

Syphilis is very prevalent in the United States, and since Spirochaeta pallida may attack any organ or tissue of the body, the disease may be encountered in every specialty in the practice of medicine. It has been

estimated that as many as ten million persons may have syphilis in this country, and it is a safe assumption that the majority either do not know that they have the disease or believe themselves to have fully recovered from it.

It is sometimes stated that the diagnosis of syphilis should not be made in the laboratory, but it is easily proven that in many instances, probably the majority, diagnosis can be made only in the laboratory.

The diagnosis of the chronic or primary syphilis is best made by dark-field examination of the secretions for Spirochaeta pallida. Volumes have been written on the clinical differentiation between syphilitic and non-syphilitic sores, but even the most expert and experienced physicians will make very regrettable errors on occasions if relying alone on clinical judgment. Small lesions masquerading as herpetic sores are sometimes syphilitic, and chancroids may be infected with Spirochaeta pallida as well. It is safe to state that no venereal sore should be finally diagnosed as non-syphilitic, until at least three dark-field examinations have proven negative for Spirochaeta pallida.

Primary lesions on the fingers, lips and other locations may readily escape clinical diagnosis and should be examined for syphilis upon the slightest suspicion.

For dark-field microscopical examinations, the patient should be brought to the laboratory so that small amounts of secretion may be obtained for immediate examination. If this is not possible, a drop or two of secretion may be collected by the physician in a small pointed capillary tube, sealed with vaselin (not with heat) and delivered within twenty-four hours for examination, as the spirochetes usually retain their motility for this length of time.

Diagnosis may be also made by submitting the secretion to the Kline microscopical precipitation test, or if 0.2 cc. or more can be collected, the Wassermann test may be conducted as described several years ago by Klauder and Kolmer.

India ink and stained smears of secretion for Spirochaeta pallida are much less satisfactory.

The early diagnosis of primary syphilis places a great responsibility upon the physician as accurate, diagnosis should be made as quickly as possible and treatment instituted without delay. Every clinical diagnosis of chancre should be confirmed and syphilis should never be excluded except with the aid of one or more of these laboratory procedures. In the order of accuracy and practical value, the author believes the latter may be listed as follows:

(a) Dark-field microscopic examinations.

(b) Kline miscroscopic precipitation test.

(c) Kolmer complement-fixation test with secretions.

(d) India ink or stained smears for Sp. pallida.

Late primary lesions with considerable healing may be unsatisfactory for these examinations. Likewise early lesions treated with antiseptics. All local applications should be omitted for at least 24 hours. One negative dark-field examination does not exclude syphilis; at least three negative examinations on different days are required.

The blood Kolmer-Wassermann reaction is not usually positive until the primary lesion has been present for 8 days. The same is true of the Kahn and Kline reactions. Therefore these tests are not usually of value in the diagnosis of primary lesions during the first five days. Certainly negative blood reactions do not exclude syphilis. But these tests should be made when the lesions are present for 8 to 10 days or longer. They are especially valuable in cases of healing sores present 2 weeks or longer, as at this stage they are positive in about 90 per cent of cases. But a single negative Kolmer-Wassermann, Kahn or Kline reaction at this time does not definitely exclude syphilis. The tests should be repeated one or more times at intervals of 5 to 7 days.

In secondary syphilis the Kolmer-Wassermann, Kahn and Kline reactions are positive in almost 100 per cent of cases. Clinical diagnosis may be difficult in some instances. Certainly syphilis should not be excluded in suspicious cases upon clinical grounds alone. The laboratory tests may confirm a diagnosis, may detect the disease when unsuspected or correct a mistaken clinical diagnosis. On rare occasions the first blood tests in secondary syphilis may yield negative reactions for reasons unknown at present; repeated tests, however, are almost invariably positive. The author has not as yet seen a case of secondary syphilis with repeatedly negative Kolmer-Wassermann reactions.

In the following or so-called "latent stage" the serum tests are of inestimable value in diagnosis. At this time clinical diagnosis may be, and usually is, impossible. A negative history does not exclude syphilis. Many individuals and especially women may never suspect the presence of the disease. Others may believe themselves to have been cured. Some recollect having had a venereal or extra-genital lesion which a physician has pronounced non-syphilitic. Fully 90 per cent give positive Kolmer-Wassermann reactions

and the serum tests should never be omitted if there is the slightest reason for suspecting syphilitic infection. A single negative does not exclude the disease.

Since latent syphilis may be encountered in the practice of every specialty in medicine and surgery, a routine serum test should be used more frequently than at present and especially in diagnostic surveys of individuals over 40 years of age. In hospital practice Wassermann tests are now usually conducted routinely on all ward cases, and for this reason these patients are usually more fortunate than private patients because of the greater chances of detecting unsuspected syphilis. It is greatly to be regretted that Wassermann tests are not conducted more frequently in private practice. If they were, there would be much fewer regrettable errors in diagnosis in high places.

It is extremely important to detect syphilis in the "latent" stage, because the institution of proper treatment may prevent the development of tertiary lesions. There is probably no true latency in syphilis as the infection is usually progressive in the internal organs and especially in the cardio-vascular and central nervous systems. It is better to call this the "concealed" stage of syphilis.

In tertiary syphilis the Wassermann and precipitation tests are invaluable aids in diagnosis. The percentage of positive reactions varies according to the sensitiveness of the tests and the skill of the serologist.

Weakly positive reactions should not be ignored. If the tests are properly done they may constitute the only definite evidence of syphilis at a time of golden therapeutic opportunity. They should be at least repeated. A great deal of harm has been, and is being done, by ignoring unexpected weakly positive reactions.

This is especially true of the Kolmer-Wassermann test which, when properly conducted, possesses an extremely high specificity for syphilis. The precipitation tests (Kahn, Kline, Meinicke, etc.) are much more likely to yield weakly positive non-specific reactions.

There cannot be any strict parallelism or co-relation between the serological reactions and the clinical condition of the patient, because symptoms depend upon the location of the infection while the strength of the serum reactions depends upon the numbers and activity of the spirochetes. A few organisms in the posterior nerve roots and posterior columns of the spinal cord may produce symptoms of tabes dorsalis while too few to produce enough antibody for yielding positive serum reactions. Or a large number of spirochetes in a tissue of lesser physiological importance may produce strongly positive serum reactions with few or no symptoms.

All of the serum tests for syphilis are biologically non-specific as all employ alcoholic extracts of non-syphilitic tissues for antigens.

But all possess a very high degree of practical specificity as the only non-syphilitic diseases capable of yielding positive reactions are yaws, trypanosomiasis, leprosy and probably relapsing fever, which are rare or unknown in the United States.

A great deal of the literature indicating the possibility of positive Wassermann reactions in scarlet fever, tuberculosis, cancer, pneumonia and other diseases in non-syphilitic individuals, is now obsolete because based upon defective technic.

The great majority of falsely positive Wassermann reactions are due to regrettable and avoidable errors in technic.

Some methods are fundamentally wrong and cannot give satisfactory results regardless of the skill with which they are conducted. Others are fundamentally correct but cannot give satisfactory results in the hands of unskilled and careless technicians. Physicians often commit the very regrettable mistake of entrusting the serum tests for syphilis to inexperienced technicians. Incalculable harm is being done by this careless practice.

Unfortunately none of the serum tests for syphilis are sufficiently sensitive; all give a percentage of falsely negative reactions, especially in "latent" congenital syphilis and marital syphilis of child-bearing women.

The mechanism of complement-fixation and precipitation in syphilis would appear to be fundamentally the same, but the tests cannot be expected to yield exactly similar results under present conditions. A serum may give a positive Wassermann and a negative precipitation reaction or the reverse.

Therefore, the serum diagnosis is best served by testing each serum for the Wassermann and one of the precipitation procedures. Either test alone leaves about 5 to 10 per cent chances of error.

The precipitation tests are more likely to yield falsely positive reactions, than the Kolmer-Wassermann reaction. They are technically simpler, but required as much skill, especially in making the readings.

The complement-fixation and precipitation reactions in syphilis are due to Spirochaeta pallida, and are reactions of infection

rather than of immunity. This means that the antibody occurring in the blood and spinal fluid responsible for the reactions probably does not play any important part in resistance to the infection.

For this reason these reactions are valuable guides in the treatment of syphilis. In the author's opinion no case of syphilis with persistently positive reactions can be regarded as cured, regardless of clinical condition. A single negative reaction is not a criterion of cure. The reactions should be persistently negative for at least 2 years after the cessation of treatment and the author believes that every patient should have a Wassermann test at least once a year for 5 to 10 years thereafter and probably for the balance of life. Under these conditions relapsing infections occurring one or more years after cessation of treatment, may be detected and proper treatment instituted months and years before clinical manifestations become apparent.

Quantitative Wassermann reactions are especially valuable as a guide in treatment. Insofar as diagnosis is concerned the reactions need be reported only as positive or negative, but in treated cases a measure of the degree of complement-fixation is desirable. If tests are conducted with only one or two tubes the reactions cannot be quantitative. For example, a serum before treatment may give a 4 + reaction; after treatment it may still be 4 + despite the fact that the amount of antibody has been materially reduced. A quantitative test employing different amounts of serum or spinal fluid detects the difference and gives information of more value in relation to therapy.

While the luetin skin test is not, strictly speaking, a laboratory test, yet it may be briefly referred to. Luetin prepared of cultures of Sp. pallida is not as reliable as luetin prepared of tissues containing large numbers of spirochetes. These "organ luetins," as employed by Hollander and that prepared of the syphilitic testicles of rabbits by Kolmer and Tuft, are capable of yielding specific reactions sometimes of practical value in diagnosis, especially of prenatal (congenital) syphilis.

An examination of the cerebrospinal fluid should always be included in the diagnostic survey of latent and tertiary cases of syphilis. Occasionally spinal fluid changes are found when the blood tests yield negative reactions and especially in incipient tabes dorsalis. Even when the diagnosis is established by clinical and Wasserman examinations, the fluid should be examined, because if positive results are observed the therapeutic program should be arranged to meet the conditions. And no case of syphilis should be discharged as cured without at least one spinal fluid examination. If positive findings are observed, the fluid should be re-examined at intervals after courses of treatment. No cases of syphilis with positive changes can be regarded as cured.

In examinations of cerebrospinal fluid, the following tests should be conducted:

(a) Total cell counts done immediately after collection, if there is no blood.

(b) Protein tests, if there is no blood; the Pandy is preferred.

(c) The Wassermann test; the presence of a trace of blood does no harm.

(d) The colloidal gold test, if there is no blood.

The colloidal gold test is especially valuable if the reagent is properly prepared. A curve of the zone I type, like 5555432000, is especially significant as it is characteristic of paresis and may establish the diagnosis of incipient paresis long before this is possible by clinical examination. Any individual whose spinal fluid gives a reaction of this kind under proper technical conditions is in grave danger and should receive vigorous treatment. In other types of symptomatic and asymptomatic neurosyphilis, the curve is usually of the zone II type, like 1234421-000; this is indicative of neurosyphilis of any type other than paresis and is especially found in tabes dorsalis.

RETINAL VASCULAR SYSTEM

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(Read before the Arizona State Medical Association, at their annual meeting in Nogales, Arizona, April, 1931)

Despite the spectacular advance of modern laboratory methods, the practice of medicine is still an art and not wholly a science. The disposition to over estimate laboratory investigations is overdone. It is to be pointed out that the patient's body is really the most splendidly equipped laboratory in the world, affording a truly superior opportunity for study of its biochemistry. Physician and patient are living beings in which purely clinical investigation of the patient, in association with personal experience, knowledge, and even intuition, is of vast importance in the matter of arriving at a proper diagnosis.

It is quite the rule that, in contributions found in literature concerning cardiovascular cases, every possible laboratory test will be performed and accurate clinical observations noted, but not a single reference

made as to the findings on the fundus oculi-they are simply ignored.

Physicians do not dispute the value and advantage gained by the proper use of the ophthalmoscope, yet, due to an apologetic bowing to the instrument, as though it were deified, it is avoided by the medical profession except for a number of eye physicians. The latter do not always use it to its utmost limitation.

Together with the sphygmomanometer, the ophthalmoscope is invaluable in the clinical study of the cardio-renal-vascular system. The purely mechanical interpretation of arterial tension is utterly inferior in importance to the precise clinical information gained by a careful prolonged study of the retinal vascular system with the ophthalmoscope. With this instrument very valuable information is obtained regarding the transparency of the media-cornea, lens, and vitreous-together with all forms of vascular abnormalities, retinitis, exudates, hemorrhages and gross changes. Our porticular subject under discussion in this contribution is the retinal vessels. Many eminent investigators have contributed much to our store of knowledge concerning this interesting topic. Marcus Gunn, a pioneer, has probably been the most outstanding, with Bull, Knapp, Foster Moore, Bailliart, and also de Schweinitz. The last has contributed valuable information with a description of his "corkscrew" vessels.

For the purpose of careful and thorough ophthalmoscopy, certain essentials are quite necessary. The examination should be carried on in a darkened room, the patient properly seated, with the unexamined eye fixed on a distant point directly in front. It may or may not be necessary to dilate the pupil. It facilitates much for the physician to be comfortably seated, relaxed, and adjusted for the important work at hand. Any of the various patterns of ophthalmoscopes may be selected. For more intense illumination and more minute examination, one of the self-luminous ophthalmoscopes is preferable.

In order to appreciate retinal vessel pathology, it, of course, is necessary that one familiarize himself with the appearance of the normal fundus. The vessels emerge from the substance of the optic nerve, pass over its head and out onto the retina, branching in all directions. Being terminal vessels, they do not anastomose. The vessels project very slightly above the plane of the retina and are more or less fixed by surrounding connective tissue. The largest of the retinal vessels are about one sixth of a millimeter in diameter and the smallest one hundredth of a millimeter, just large enough to permit the passage of a leukocyte. These vessels, studied with an ophthalmoscope, through the various media of the eye, are observed magnified, possibly, some twenty-five times. This fact should be especially impressive to the clinician of the great value to be gained by careful study of the fundus oculi in all conditions where the blood vessels, heart, and kidneys are in question. The vessel walls are weaklly developed and are supported in the retina by a very delicate connective tissue—Mueller's fibers and the neuroglia. Vessel translucency, especially with the arteries, depends upon the healthfulness of the delicate vessel wall and also the surrounding tissue. The translucency is a matter of great importance in determining whether or not pathology is present. If this translucency is gone, it is an advance sign of beginning arteriosclorosis. As a rule, arteries cross the veins, but sometimes the opposite is true, or perchance the artery may cross the vein and, at a recrossing farther along, the vein cross the artery. At these crossings, the artery translucency may be examined and by careful observation one can see dimly the outline of the underlying vein. These observations should be conducted away from the head of the nerve, as the blood column in this region is so thick.

It is always difficult to determine in a given subject whether or not the vessels are wider or narrower than normal, vessel width varies so greatly in different subjects. If, however, the caliber shows a variation in different parts of its course, pathology is present. This is usually observed in conjunction with other serious vessel changes.

Normal vessel crossings show no depressing or crushing of the caliber of the vein or deflection in its course. Care should be exercised not to mistake congenital variations for pathological changes. The retinal circulation is observed in highly organized nervous tissue and it is very probable that there is a close relationship with the cerebral vessels. Examined carefully by an experienced observer, the earliest pathological changes indicative of impending danger to the general vascular circulation may be detected in the small twig-like vessels, particularly in the macular region.

Both the artery and the vein, accompanied by lymphatics and surrounded by fibrous tissue, emerge from the substance of the optic nerve. The elastic sheath of the optic nerve allows for the enlargement and collapse of the vessels. The lamina cribrosa surrounds the vessels more closely and is less resilient. This feature is well illustrated by the frequent observation of the enlarge-

ment of the vein as it passes through the meshes of the lamina. The lymphatics blended with the adventitia form the perivascularis. Frequently one sees white lines paralleling either side of the vessels as they lie on the head of the optic nerve. These lines sometimes extend into the retina beyond the border of the nerve head. Care must be exercised not to consider them always pathological, as they are frequently physiological, as observed in perfectly healthy young subjects. The explanation of their presence is rather uncertain; according to Zalzmann, they may be an optical result of the adventitia with thickened neuroglia. It is certain they are not the same as the white lines observed on the retina. Retinal vessels have white light streaks along the center of the vessel, rather more prominent in the arteries than in the veins. Gunn believed that it is due to refraction of light; Bailliart, the reflection of light on the walls of the vessels.

This very brief description of the normal retinal circulation will aid in detecting certain changes indicative of early pathology. The ophthalmoscopical examination of the biochemistry of the tissues in the living body is so incomparably more delicate than laboratory tests. The term sclerotic vessels is perhaps better nomenclature than arteriosclerotic. Many investigators use the terms primary and secondary arteriosclerosis. The histology of the retinal vessels is simple—endothelium, muscular and connective tissue. Toxins of the body may attack the endothelium, causing a thickening of the intima, atheroma, or a sclerosis in the muscular coat; either may be primary but if the former is first attack, and it grows outward attacking the muscular coat, the sclerosis of this tunica is secondary. Atheroma is of infrequent occurrence in the retinal vessels and usually results in thrombosis. It is a condition which usually attacks the larger vessels, such as the aorta, carotids or cerebral vessels.

Syphilis and tuberculosis, which are outstanding in their pathologic influence on the vascular system, are not so with the retinal vessels. That is, the retinal circulation of the posterior segment of the eyeball is relatively free from such invasion. The uveal tract of the anterior segment, and extending back as the chorid, is especially vulnerable Basing a diagnosis and prognosis on information obtained by purely mechanical means such as palpation of radials or blood pressure, only erroneous deductions can be made. Examination of the radials may be misleading in that they may be unduly rigid or flaccid, or there may be a marked difference between the two sides. With the blood pressure apparatus, if the ordinates of the systolic and the diastolic pressure remain high, but keep parallel and do not tend to meet, then the prognosis is more favorable. If, however, there is not a harmonious relationship, with the diastolic pressure persistently high, serious danger is imminent. A correct appraisal can be appreciated only in conjunction with the accurate clinical picture observed in the fundus oculi by the ophthalmoscope. It is the picture screen upon which life's vascular picture is shown.

In view of the fact that vascular disease in one part of the human organism reflects largely the vascular condition in other parts and that the fundus oculi is the only accessible point for such clinical study, what are the cardinal changes to be observed?

(1) Impairment of the translucency of the retinal vessels is a delicate change. This is the first observable pathological change and is not necessarily due to sclerosis, but can be caused by any toxemia, such as accompanies acute infectious disease. It is observed by study of the vessels at crossings and may or may not be accompanied by increase of blood pressure. From a clinical point of view increased blood pressure affects the translucency of the retinal blood vessels as a site of predilection.

(2) Later, accompanying the loss of translucency, is the "copper-iwre" appearance and with it the "dotting" of the light reflex. Copper-wire vessels have much the appearance of a polished trolley wire from which sunlight is reflected.

(3) An unduly red retinal reflex, together with a pinkish to brick red color of the optic disc, is an early evidence of vascular disturbance, especially in the presence of an increase of the blood psessure.

(4) The appearance of white lines on either side of the vessels at the crossings follows shortly after the loss of translucency. This development plays an important role in the binding together of the perivascularis of the artery and vein.

(5) Later will be observed white lines accompanying the retinal vessels on either side. This is a perivasculitis, an edema and inflammation of the perivascularis. These changes are present in syphilis, nephritis, and retinitis of pregnancy.

(6) Pathological tortuosity is a very uncertain factor and must not be confused with a certain normal waviness of the vessels. A very significant feature is the presence of the "corkscrew" vessels of de Schweinitz. Venous tortuosity may be explained as due

to obstruction to the outflow. Arterial tortuosity is more difficult to explain; one theory is the deterrent effect of blood passing through a narrowed tube.

(7) Variations in the lumen are of serious import. A localized sclerosis of the perivascularis and a hypertrophy of the endothelial cells seem to be the most acceptable theory proposed in explanation of the condition.

(8) In silver-wire arteries the central light reflex is very bright and the entire surface of the vessel has a much lighter appearance. Fine red streaks parallel either side of the light streak. A vessel thus involved usually suffers its entire length.

(9) Venous pulsation if of rather frequent occurrence. It may be observed in perfectly normal fundi, particularly on the disc, and is explained by the obstructing influence of the lamina cribrosa as the vein passes through its meshes. Arterial pulsation is quite another matter, in that it is observed only in pathological conditions such as valvular disease of the heart. It is frequently described as being observed only on the disc. This is not strictly correct for the reason that careful observers have detected it away from the disc. It is observed as a tremble and can sometimes be detected by carefully watching the light reflex surrounding the artery. Just recently the writer observed, in a woman aged 27 years, the inferior artery pulsate. The pulsation was partly on the disc and extended fully a disc diameter beyond. The artery seemed to have a slightly rotating, trembling appearance. Attention was attracted to it by noting that the white lines seemed slightly to narrow and broaden.

(10) Compression at artero-venous crossings is easily observed but not so readily explained. Gunn was the first to describe the condition as vessel indentation. The more or less accepted explanation has been that the weight of the rigid artery resting on the resilient vein indented it. This, however, does not explain compression of a vein where the artery passes below instead of over the vein. Pine's theory is much more tenable. His explanation is that in sclerosis the perivascularis at the crossing becomes inflamed, forming a connective tissue; the resulting scarring contracts, thus compressing the vein, the weaker vessel of the two. Jaskson suggests that it may be due in part to a changed refraction—the passing of the vein into the non-resisting choroid. The constant hammering of the artery may develop a thickening in the venous wall, like a callus. Simple compression does not impede the venous flow, but later, when actual crushing occurs, the flow is impeded, which results in banking of the vein peripheral to the crossing.

(11) At crossings where crushing has occurred, the vein is frequently deflected, most frequently centrifugally but upon occasion centripetally. When centrifugally deflected, it is influenced by the direction of the arterial blood current, but when centripetally deflected, it results from a greater advance of the sclerosis of the perivascularis of the artery, the connective tissue formed dragging the vein toward the center of the fundus.

As sclerosis advances, changes increase in the retinal vascular tree. Beyond the point of crushing, veins show tortuosity, banking aneurysmal formation, and hemorrhages. In the artery these changes are due primarily to the blocking at crossings, but essential increased blood pressure, with its secondary effect of sclerotic changes, thus weakens the arterial wall, which results in either dilation or hemorrhage. With the veins, crushing at the crossing impedes the flow of blood and the back pressure causes the weakened diseased venous wall to dilate. Increased blood pressure, particularly a sustained diastolic pressure, plays a very important role in the development of retinal sclerosis. It is more than likely it has a special predilection for the retinal vessels, showing equally with the cerebral vessels, the kidney being a close second.

It is a very significant fact that, of all higher sense-organs, the retina is the first to be involved in the vascular disease. Vascular hypertension always precedes retinal disease. In retinitis albuminurica the eye changes have, upon occasion, been observed some time in advance of kidney involvement. The albumin usually is small in amount. In the toxemia of pregnancy, the retinitis is preceded by a hypertension. Neither of these two conditions, retinitis albuminurica or retinitis of pregnancy, is a sequel to kidney disease, but they are due to a common toxin affecting the vascular system with a special predilection for the retinal vessels. In the latter, the intoxication is due to pregnancy; terminate it, and recovery is certain. A subject for thoughtful consideration is the association of vascular changes with liver-endocrine and the parathyroid in relation to calcium biochemistry.

LOBAR PNEUMONIA COMPLICATED BY ACUTE EMPYEMA

(Case Report)

L. LEIGHTON GREEN, M. D.,
El Paso, Texas

This rather typical case of lobar pneumonia, complicated by acute empyema, is presented to emphasize two points:

1. The value of oxygen inhalation in pneumonia.

2. The advisability of conservative treatment in empyema.

A Mexican laborer for the Texas & Pacific Railroad, contracted an upper respiratory tract infection about March 20, 1931. He remained off work for one or two days, without medical attention, coughing, suffering from general malaise, headache, and aching extremities.

Returning to work, he was forced to stop again and he finally called for a doctor. On March 27th, he was visited for the first time. He complained of sore throat, non-productive cough, malaise, aching arms and legs, and headache. His past history did not throw any light on the present illness, and the family history was irrelevant. Married for 13 years, he was supporting a wife and three children in the unhygienic surroundings to which men of his race and occupation are accustomed.

Examination revealed a well-developed and well-nourished Mexican man, age 31, apparently acutely ill. His temperature was 102, pulse 110 regular. Pharynx showed some inflammation. Examination of the lungs revealed no rales, and only normal broncho-vesicular breathing. Cough sedative and antipyretics were prescribed.

The following day, the patient appeared more acutely ill. Temperature was only 101.8, pulse 104, respiration 28, but perspiration was profuse, cough was almost incessant, and at base of left lung were found increased fremitus and voice sounds, dullness, bronchial breathing and crepitant rales.

Vega was admitted to Hotel Dieu with a diagnosis of lobar pneumonia, of left lower lobe. His temperature rose to 103, where it remained for two days. Consolidation of the left lower lobe was complete on the second day of hospitalization, the left upper lobe and entire right lung remaining clear. Pulse rose to 120, and digitalization was thought advisable. Supportive measures accompanied this medication, with inhalations and antipyretics.

On March 30 patient complained of pain in his left axilla, where a loud friction rub was heard. Adhesive strapping relieved the pain. The cough decreased in intensity, but a rusty sputum now appeared, typically blood-tinged and frothy. The temperature broke into a septic curve, rising to about 102 daily.

April 2 temperature was only 100 but cyanosis became more marked, respiration and pulse speeded up, and examination discovered extension of the pneumonic process into the left upper lobe. This lobe promptly became consolidated. The patient's pulse was weak and thready, cyanosis was increasing, respiration was seriously impaired, as evidenced by a respiratory grunt and inspiratory dilatation of alae nasi. An oxygen tent was installed and relief was immediate. Cyanosis yielded to a pink color, the grunt disappeared, and patient went to sleep. For three days, he was kept continuously under the oxygen tent. During this time, the entire left lung appeared consolidated. Sputum changed from blood-tinged to purulent type. The oxygen tent, which must be credited with some responsibility for this man's recovery, was then withdrawn. Subcrepitant rales remained in the left lower lobe, consolidation of the left upper lobe was still apparent, but patient's general condition was much improved. Pain persisted in left axilla, temperature rose to about 100 daily, but the patient felt so well he was restrained in bed with difficulty.

Prolonged fever, flatness over left upper lobe, with decreased voice sounds and breath sounds in this area, justified an x-ray of thorax, which was made on April 20th. The report was as follows:

"Chest, supine and sitting positions: Right Lung: Increased general peribronchial thickening with some areas of parenchymatous infilteration in second and third interspaces. Left Lung: There is extensive fibrosis with areas of infiltration extending from diaphragm to just below 7th rib posteriorly. There is a dense shadow extending from 7th rib posteriorly to lower border of third rib posteriorly, that is suggestive of encysted fluid. There is no displacement of the mediastinal viscera.

"Conclusions. The markings in the 2d and 3d interspaces, right lung, are suggestive of small amount of pneumonic infiltration. The lower lobe of the left lung is suggestive of pneumonic changes. The density of the upper portion of the left thorax is suggestive of fluid which is apparently encysted by the intralobular pleura."

On April 21st, thoracentesis was done. A needle was inserted into the 6th interspace posteriorly, and 50 cc. of greenish-yellow pus evacuated. Dr. Waite reported smear and culture showed gram-positive diplococci, with gram-positive cocci in short chains also in the smear.

It was evident that more pus was present in the pleural cavity. The patient's condition remained good, however, with only a low-grade septic fever (never exceeding 100 deg.) Conservative treatment was therefore thought advisable.

On April 27th, using novocaine for local anesthesia, an incision was made lateral to the left pectoralis major muscle and a portion of the fourth rib was resected. The pleura was incised, and about 600 cc. of pus evacuated. Smear showed a few gram positive diplococci; culture was negative. About three ounces of fibrin were removed from the cavity. Two retention catheters were inserted, and the wound closed about them. No mediastinal flutter was observed, patient suffered from no shock, and his temperature immediately dropped to normal. It has not since exceeded 99, and has remained normal for a week.

Dakin's solution was first injected every three hours; the procedure has now been reduced to three times a day and once each night. Pus has ceased to drain, the fluid returning clear. Capacity of the cavity has decreased from 600 cc. to approximately 60 cc.; the patient feels well, his only complaint being because of confinement in bed. On May 6th, forced expansion of the lung was begun, by having the patient blow against hydrostatic pressure, in the famaliar two-bottle apparatus.

X-ray on May 12th reported:

Chest, supine and right lateral positions:

There is a shadow of two drainage tubes in the left pleural cavity apparently between 4th and 5th and 5th and 6th ribs. The lung is partially collapsed at this area. The pleura is greatly thickened, but no definite fluid pocket is seen.

Today (May 13th) one tube was removed. The other will be kept in place until the size of the cavity is reduced to about 30 cc., continuing lung exercises and lavage with Dakin's solution.

DISCUSSION

DR. BLACK: Grants that while the oxygen tent might have been responsible for the patient's recovery, the mortality are is no lower where oxygen is used and where it is not instituted in cases of this kind.

DR. MOTT RAWLINGS: Agrees with Dr. Black that oxygen is very effective in relieving symptoms.

DR. GREEN: Points the advantage of the closed

method in treatment of empyema, which was popular during the World War. Dr. Danna of New Orleans advocates treatment by aspiration, replacing the amount of fluid withdrawn by an equal amount of air. Allow time to elapse for complete encapsulation of fluid. The lung will draw away from the chest wall and pus will not gravitate downward. Wait for adhesions to form before resecting. There has been no improvement on Dakin's solution for treatment in these cases.

DR. CUMMINS: Thinks that aspiration and injection of gentian violet more effective than Dakin's solution.

DR. BARRETT: Spoke of a case in a child about eight years old who had pneumonia. Patient was aspirated five times, nothing injected. After the last aspiration child recovered.

PUBLIC HEALTH NOTES

J. ROSSLYN EARP, DR. P. H.
Director New Mexico State Bureau of Public Health

COMMUNICABLE DISEASE REGULATIONS

A new set of regulations for the control of the communicable diseases was promulgated by the New Mexico State Board of Public Welfare at a meeting held on July 7. These new regulations replace those promulgated on November 22, 1922, together with amendments promulgated on February 8, 1926. Copies may be obtained from county health officers or directly from the Bureau of Public Health in Santa Fe.

Two new diseases, epidemic encephalitis and tularemia, have found their way into the new set of diseases to be controlled, although admittedly the means of control are not yet perfected.

The most important changes in the regulations consist in the abolition of placarding in epidemics of measles and whooping cough. It is recognized that, once an epidemic of either of these diseases is established, placarding is impotent to arrest its course; the health officer's time can be more usefully employed in urging the isolation of well babies and protecting those, especially in the younger age groups, who have been exposed to infection. Placarding is still required in isolated cases of these two diseases. A paragraph in the old regulations permitting health officers to use "registered mail" to send "such instructions as shall be necessary for the protection of the public health" has been deleted. Improved roads and the development of public health nursing have made this compromise unnecessary.

Other changes are the natural consequence of the newer knowledge of immunology and epidemiology.

METHANOL ANTIFREEZE

The following agreement has been reached between the U. S. Public Health Service and the representatives of the interests manufacturing methanol:

"Sec. 1. The word 'person' shall be construed to include natural persons, co-partnerships, associations, and corporations. The word 'methanol' shall be construed to mean and include the products commonly known as 'methanol', 'methyl alcohol', 'wood naphtha', or any trade material which is essentially CH_3OH.

"Sec. 2. On and after July 1, 1931, no person shall sell, offer for sale, give away, or transfer to another person any substance containing more than 15 per cent of free methanol for use as antifreeze or for ultimate use to prevent freezing in automobile radiators, unless the four following provisions are complied with:

"A. It shall contain sufficient methyl violet to give an intense and permanent color to the solution, equivalent to that given by the addition of 0.01 pound of Methyl Violet 2B to 100 gallons.

"B. It shall contain antimony-potassium tartrate 0.4 pound dissolved in each 100 gallons, chloracetophenone 0.4 pound dissolved in each 100 gallons, and triethanolamine 0.1 gallon mixed with each 100 gallons.

"C. It shall contain at least 20 per cent water, by volume.

"D. All containers shall have prominently displayed a warning sign reading as follows, in prominent heavy Gothic capital letters, red on a white background:

X
CONTAINS OVER 15% METHANOL
(METHYL ALCOHOL, WOOD ALCOHOL)
CAN NOT BE MADE NONPOISONOUS
AVOID SPILLING

the words to be surmounted by skull and crossbones (X). The skull and crossbones and the letters of the word 'poison' shall be at least 1/30 as high as the longest dimension on the container, but not necessarily more than 1 inch high, and the letters of the remainder of the warning sign at least 1/60 as high as the longest dimension of the container, but not necessarily more than ½ inch high. This warning sign shall be separated from other letters or signs by a distance at least 1/15 as great as the longest dimension of the container, but not necessarily more than 2 inches. An automobile radiator shall not be construed to mean a container under the provisions of these regulations, but all containers, whether belonging to the buyer, seller, or others, shall be provided with the sign as heretofore described.

"Sec. 3. On and after July 1, 1931, no person shall sell, offer for sale, give away, or transfer to another person any substance containing more than 15 per cent of free methanol for any purpose unless the containers have prominently displayed a warning sign reading as follows, in prominent heavy Gothic capital letters, red on a white background:

X
CONTAINS OVER 15% METHANOL
(METHYL ALCOHOL, WOOD ALCOHOL)
CAN NOT BE MADE NONPOISONOUS
AVOID SPILLING

the words to be surmounted by skull and crossbones (X). The skull and crossbones and the letters of the word 'poison' shall be at least 1/30 as high as the longest dimension of the container, but not necessarily more than 1 inch high, and the letters of the remainder of the warning sign at least 1/60 as high as the longest dimension on the container, but not necessarily more than ½ inch high. This warning sign shall be separated from other letters or signs by a distance at least 1/15 as great as the longest dimension on the container, but not necessarily more than 2 inches.

"Sec. 4. All sales, except at retail, shall be made with the understanding that the purchaser will carry out the preceding provisions.

"It is also agreed that there will be no new extension of the use of methyl alcohol in industry until the conditions under which the substance can be used safely are scientifically established."

This agreement provides for a uniform distinguishing color of the antifreeze liquid, a chemical deterrent against its use for potation and a warning label. The Public Health Service has received assurances from so many manufacturers that they believe that all important sources of methyl alcohol in this country will be controlled by the above agreement. Should this expectation fail to be realized the State Board of Public Welfare will no doubt promulgate regulations to the same effect.

SANITARY DRINKING FACILITIES

The Women's Bureau of the U. S. Department of Labor has just published a short but important study of sanitary drinking facilities[1]. It is shown that an improperly constructed fountain, e. g., one with a vertical jet or with a jet improperly guarded, may be quite as dangerous as the common drinking cup. Standards for construction are quoted from national organizations and from state sanitary authorities. In spite of its well-recognized defects, the vertical jet fountain is, it seems, still being regularly installed. Physicians will do a public service by calling attention to this little pamphlet whenever plans for installing drinking fountains in schools, factories or public places may come to their notice.

(1) Sanitary drinking facilities with special reference to drinking fountains, Bulletin of Women's Bureau No. 87, U. S. Government Printing Office, 1931. Price 10 cents.

POSTURE AND HEALTH

Five years ago the Children's Bureau published a pamphlet on what they were pleased to call "Posture Clinics". The author thereof explained with ex-cathedra authority that "the posture of the average man becomes dropped or ptotic" and that "with the consequent derangement of the elaborate mechanism maintaining the erect posture of the body, comes derangement in position of the viscera, which manifests itself frequently in obscure but distressing ailments of later life". One rather wonders how he would have replied if he had been asked to put name to the distressing ailments and to say exactly how he knew that they were derived from postural defects. However that may be, the matter of improper posture had been given a place in serious literature—unless I am mistaken, the four posture "types" originated in Harvard itself—and there were those who were not slow to boom the discovery. Physical education is a profession which for all practical purposes is of very recent date and its experts were only too anxious to discover a respectable raison d'etre.

About the time that the Children's Bureau pamphlet was in preparation, the present writer was energetically recording the silhouettes of college boys and girls and referring all those who were not up to the Harvard class A standard to the physical education deartment for "correction". His enthusiasm for this work was not a little dampened by two observations: first, that those with poor posture frequently enjoyed excellent health; and, second, that those who worked conscientiously for the physical education director showed little if any more improvement than those who consistently cut their classes. The writer passed on to other spheres of activity but the posture boom has continued. Last year at the White House Conference, the committee on medical care for children discussed the question of posture and devoted rather more space to it in their report than they devoted to mental hygiene. They admit that "much of this so-called posture work being done in the schools and elsewhere is nothing more than simple calisthenics or gymnastics", but they do not question the importance of posture work which is not "so-called". On the contrary, they find that the instruction in this subject in the majority of medical schools is "very inadequate". When the medical schools give adequate instruction in all the subjects for which adequate instruction is demanded we shall none of us begin to practice till we are forty. But the adequate course in posture must undoubtedly include the very careful biometric and statistical studies recently made by the U. S. Public Health Service. The latest of these[2] demonstrates very convincingly that there are no positive types at all but only a great variety of human body forms, a variety which is as wide in earl childhood as in adult life. Moreover, the authors can find no relationship between posture and physical impairment. If Mr. Mencken has had a chance to read this pamphlet, how it must have rejoiced his heart!

For our part we are much more willing to believe that poor posture is a consequence of ill health than that it is a cause. Take for example the case of

THE EXHAUSTED CHILD

Are children more frequently exhausted to-day than they were a generation ago? Dr. Richard C. Clarke of the Bristol Royal Infirmary believes that they are and that the modern manner of bringing them up is at the root of the trouble. It is possible that the experiences of their parents during the War may have resulted in a nervous and excitable generation of children. On this the doctor has an open mind. But he is inclined to blame the modern environment rather than the modern child. In the nursery, he says, it is infant-welfared from morning until night. Its toys are too complicated. Even a walk in the street has become a dangerous adventure. The efficiency of the modern school has been increased and the nerves of the modern scholar testify to the greater strain.

The exhausted child is not hard to detect although parents and teachers too seldom recognize the symptoms. The most prominent evidence is a lack of vitality—of tone—of the muscular system. The child "stands over itself". This is because it is depending on the bones and ligaments rather than upon the muscles for support. The shoulder blades will stand out behind and the abdomen in front. In advanced cases, even the face loses its expression. Naturally, a great many of these children are of the high-strung type, difficult, argumentative and emotional. Such children are peculiarly liable to exhaustion, but not all exhausted children are nervous. They may present symptoms of various kinds and degrees which must be considered by the family doctor who will decide whether they are simply a part of the picture of exhaustion or whether they indicate some particular disease which may be contributing to the child's exhausted state. There are probably many children suffering from this "amyotonic" state in various degrees that are not under an kind of treatment. The latter may be summed up in the one word "rest" but the detailed prescription of rest is a matter for the expert.

(2) Scyhwartz, L.; Britten, D. L.; Thompson, L. R.; Studies in Physical Development and Posture, IV Postural Relations as Noted in Twenty Two Hundred Boys and Men, Washington, 1931. Price 20 cents.

CASE REPORT

E. J. CUMMINS, M. D.
El Paso, Texas

(Reported at October Staff Meeting of Masonic Hospital, El Paso.)

Case No. 12995, child, 7 years of age.

About three years ago, in the latter part of 1928, child complained of pain in his right thigh just above the knee. Shortly after the onset of the trouble, his tonsils were removed because of a diagnosis of rheumatism. After his tonsillectomy, the child still continued to have pain about the right knee. In January, 1931, he was brought to El Paso and an x-ray of the right femur was taken. A diagnosis of osteomyelitis was made. He was entered in the Masonic Hospital and operated upon. The surgeon states that there was no bone destruction, but there was an elevation of the periosteum and a considerable amount of dark-colored material, which was thought to be necrotic bone. This was removed. This material was found both in the cortex and the medulla. There was no free pus. Cultures from this material were negative. The maximum temperature during this hospital stay was 101°.

Child was again admitted to the hospital on July 18, 1931. He had not done well since his operation. He had continued to have some pain and ran some fever. X-ray pictures of the right femur at this time showed destruction of bone, tumor mass in the soft tissues and spiculations of bone both parallel and perpendicular to it. Periosteum was raised, the bone was wider than normal. A diagnosis of osteomyelitis was again made, and the child was again operated upon. The operating surgeon reported free pus beneath the periosteum and surrounding tissues. There was also considerable bone destruction. His maximum temperature during his stay in the hospital was 102.2°. He was dismissed from the hospital with a temperature of 99.6°. Cultures from the pus were sterile.

On August 8, 1931, patient returned to the hospital for insertion of surgical maggots. His temperature varied from 101° to 103° during his hospital stay. A pulmonary complication occurred at this time and x-rays of his chest were taken. X-ray report stated that the right lower lobe was generally clouded by confluent areas of consolidation. The right diaphragm was fixed at the rib margin. There were also areas of consolidation near the hilus of the left lung. A week later a second x-ray was taken and the report stated that there were areas of unresolved bronchopneumonia. These lesions were unchanged since the previous picture. Also that there was a dry pleurisy of the left chest. No evidence of fluid was noted. Child stayed in the hospital one month.

After leaving the hospital his temperature fluctuated from normal to 103°. Upon examination one got the impression that the fever was not caused from the condition of his limb. There was distinct enlargement of the lower end of the right femur. This tumor mass was not distinctly tender, but it was hot and painful on deep pressure. The child was breathing rapidly and one's attention was directed to the chest.

Examination of the chest revealed dulness over the right lower lobe, decreased breath sounds, and many rales. A similar condition was noted in the left chest.

X-ray of the right femur on September 21 showed a tumor mass outside of the bone, marked bone destruction. The pathology involved the lower third of the right femur, but did not extend into the epiphysis. The bone was wider than normal and there were bony spiculations both parallel and perpendicular to the shaft. There was an area of diminished density at the site of the former operation. X-ray of the chest showed a fluid line low down on the left side and many small areas of consolidation scattered throughout both lungs. At this time both pleural cavities were aspirated. A small amount of thin serum was obtained from the left pleural cavity and about 3 cc. of thick pus from the right pleural cavity. Cultures were sterile. Diagnosis of Ewing's sarcoma with lung metastasis was made.

The differential diagnosis between sarcoma and chronic osteomyelitis is often difficult to make. It is likely that this child has had sarcoma of the lower end of the femur for the last three years and during that time he has been treated for rheumatism and osteomyelitis. It is not unusual for this mistake to be made. Cases of osteomyelitis have been treated for sarcoma and cases of sarcoma have been treated for osteomyelitis. The temperature that this child had and the leukocytosis of 18,000, would be somewhat confusing unless one realizes that cases of sarcoma, especially when metastasis has occurred, run a fever from 101° to 10° and a leukocytosis of 15,000 to 20,000.

CASE REPORT

G. WERLEY, M. D.
El Paso, Texas

(Presented before the El Paso County Medical Society, Oct. 12, 1931.)

Mr. C. S., age 41, dental-plate maker, while in his office on Sept. 29, 1931, had numbness and a dead feeling in his right leg, with loss of sensation and control. At the end of fifteen minutes there was complete paralysis, with some pain in the calf of the leg and the anterior muscles of the thighs. He was pale, covered with cold sweat, pupils dilated and pulse weak. Examination showed the right leg to be pale and cold, the veins collapsed, and no pulse lower than Scarpa's triangle. There was complete paralysis of the whole limb.

Because of mitral stenosis and auricular fibrillation and the history of an attack of left hemiplegia a year ago, a diagnosis of embolism seemed most likely, and the patient was taken to Providence Hospital for embolectomy. While waiting for Dr. Haffner, repeated examinations of the leg arteries were made. Finally the pulse in Scarpa's triangle was a little stronger and with it a marked palpable thrill occurred and a loud bruit was heard with each pulsation. The patient said that the sensation in the leg was like that when the blood-pressure cuff is being released on the arm. These phenomena continued for about ten minutes and then entirely disappeared. However, by pressure on the internal iliac, the same sounds could be reproduced. He was soon able to move his leg and next day could walk quite well. The temperature rose to 99.5°.

Of course the idea of embolism had to be discarded—an organized clot could not disappear in so short a time in any way imaginable. That the artery was obstructed high up is evident from what was observed. There may also have been some reflex peripharal spasm.

On further inquiry I found that, as a child and up to his eighteenth year, he had suffered from violent sick headaches always relieved by vomiting. Bread and milk were sure to start it. Nuts of various kinds also brought on attacks. Of late he has drunk malted milk and eaten pecan cookies.

It is to be noted that his temperature went to 99.5° the evening of his attack.

The case has been a puzzle to me but I have a solution that may be right or wrong. I will reserve it until after the general discussion.

NOTE: Patient has since died and post mortem showed, in addition to mitral stenosis, a thombus filling the basilar artery of the brain. The aorta was moderately sclerotic and there was a sclerotic

patch about 2 cm. long in the right common iliac artery. Otherwise, the artery was normal. So the explaination offered for the obstrucciton seems to be as good as any.

CASE REPORT

A. W. MULTHAUF, M. D.
El Paso, Texas

This case is one of injury to the kidney from a fall. Injuries of the kidney are best divided into two groups:

1. Subparietal or non-penetrating, in which there is no external evidence of injury except, possibly, a slight bruise on the skin.

2. Penetrating injuries, where there is an external wound of entrance over the kidney region or in close proximity to it.

In the mechanism of the injury in the subparietal type, the force may be exerted either from the front, side, or from behind. The kidney may also be injured in a manner which is analogous to that known in cerebral injuries, that is, by contrecoup. This mode of injury is, however, very rare. Injury by muscular action is also rare and can occur as a result of sudden contraction of the diaphragm or of the abdominal muscles; for example, after lifting a heavy weight or in abrupt flexion of the body.

Kuster was the first to offer the hydraulic theory in order to explain injuries of the kidney, although this explanation cannot be applied to the tearing of the vessels of the renal pedicle or of the ureter. It serves, however, to clear up the manner in which at least the injuries of the kidney proper occur. The kidney, when filled with blood and subjected to compression, will tear as does the skull or brain in the point where its elasticity fails to resist the compressing force.

The type of injury presented in this case report can be classed as a contusion of the parenchyma. In this form of injury there is hemorrhage into the cortex and medulla without any visible tears of the fibrous capsule or parenchyma.

We shall now take up the clinical picture of kidney injury. There are those cases in which the symptoms of primary shock are followed by those of internal hemorrhage. In these cases the patient is apt to continue to work or walk around until the anemia from hemorrhage around the kidney compels him to seek medical aid. It must not be forgotten that the pallor, small rapid pulse, and so forth, in the first hours, may be due to shock as much as to hemorrhage. So much for the clinical picture.

Hematuria is present in about 90 per cent of the cases. It usually is observed immediately after the injury but may be delayed if the ureter is blocked by a clot.

Pain is rarely absent. In most cases it is very severe and of a colicky nature.

Peritoneal irritation may predominate in the clinical picture. There may be nausea and vomiting.

Diagnosis of subparietal kidney injury. The outstanding features of these in the order of their frequency are hematuria, shock, signs of internal hemorrhage, localized pain, rigidity and gradually increasing swelling over the injured kidney, and signs of peritoneal irritation. The diagnosis is definite when carried out with cystoscopy and pyelography.

The chief dangers of kidney injury are death from hemorrhage during the early, and from infection in a later, period. The treatment may be divided as follows: (1) expectant, that is, conservative; (2) operative.

Expectant treatment. This, in the opinion of those who have had a large experience, is the treatment of choice. Operation is indicated under these conditions: (a) If the hematuria is so severe and persistent as to threaten life. (b) If the signs of internal hemorrhage are increasing rapidly. (c) If chills, fever, and other evidence of infection of a perinephritic accumulation of blood and urine are present.

In regard to the operative treatment, it might be said that it presents a very difficult surgical procedure on account of the inaccessibility of the renal pedicle and on account of the bleeding which immediately commences upon dislodging the clots from the torn surfaces.

The treatment we employed in this case was of a very conservative nature, complete and absolute rest in bed, observation of pulse and blood pressure constantly. The convalescence was stormy for the first three days, during which time the patient was showing signs of a peritoneal irritation, due, we presume, to the reflex injury to the kidney; but at the end of ten days he was in a position to leave the hospital and now is back on his job and apparently well as ever.

CASE OF EPISTAXIS LASTING A WEEK (Diagnostic Discussions)

(Case selected from the Case Records of the Massachusetts General Hospital, as published in New England Jour. of Med., for July 17, 1930, page 129.)

CASE HISTORY

A Filipino cook aged twenty-nine, single, entered the hospital complaining of backache of one month's duration.

The family history is unimportant.

Past history. He lived in the Philippine Islands until four years before admission. For the past four years he had lived in Massachusetts. It was impossible to obtain a history of any previous illness.

Present illness. One month before entry he was thoroughly chilled on a long automobile ride. That night he felt feverish and was kept awake by a deep, dull, burning ache in the thoracic portion of his back. The pain was persistent, being most marked in the left portion of the back. At times it radiated upward to the neck and head. He continued to work, however, until one week before admission, when he became nauseated and vomited several times. It was then that he first noticed blood streaked sputum. He developed also a slight but unabated epistaxis which had continued more or less constantly, being most marked during mornings. At times he had raised small clots of blood which seemed to come from the posterior nasopharynx. He went to bed for three days, then attempted to resume his work, but because of pain, epistaxes, morning headache, loss of appetite, lassitude, and increasing dyspnea on exertion he decided to enter the hospital.

Physical examination showed a well developed and well nourished Filipino lying quietly in bed supported by a back rest. He presented a somewhat worried and anxious appearance, but seemed in no distress. His lips were pale; the skin of fine texture, hot and dry; the nose filled with dark red crusts; the breath heavy; the tongue and gums red but not bleeding; the pharynx injected. The eye grounds were pale, but there was no edema of the discs. In the right eye there was what appeared to be a linear hemorrhage which overlay the edge of the disc for a very short distance. The heart was very moderately enlarged. There was a forceful impulse in the fifth interspace 9 centimeters to the left of the midsternal line. Aortic second sound greater than pulmonic second. No thrills or murmurs. Blood pressure, systolic 158, diastolic 90. The lungs were clear and the abdomen negative. There was no lymphadenopathy. The reflexes were normal.

Clinical and laboratory notes. The temperature varied from 97° to 99° F. and was usually slightly subnormal. The pulse ranged between 70 and 90, usually about 80. The respirations were 20. The admission specimen of urine was clear, amber colored, acid, specific gravity 1.008, albumin the slightest possible trace, no sugar. The sediment showed 3 to 5 white cells, 20 to 30 red cells and a rare hyaline cast per high power field. Subsequent urinalyses showed the specific gravity to vary between 1.014 to 1.018, with a trace of albumin, usually a few white cells, a few red cells, but no casts. The hemoglobin was 35 per cent, red blood cells 2,500,000, leukocytes 9200, differential count 70 per cent polymorphonuclears, 27 per cent lymphocytes and 3 per cent eosinophiles. The platelets appeared normal. The serum showed negative Wassermann, Hinton and modified Hinton reactions. Two stool examinations were negative. Several specimens of vomitus were brown, with positive benzidine test, no free acid, and a total acid of 95. No sputum was obtained.

Course. The epistaxes continued. At times he vomited clotted blood. Usually he was restless. Gradually he became drowsy, apathetic and disoriented. Seventeen days after admission his respirations suddenly ceased without any warning.

Discussion by D. R. Gaskins, M. D., Phoenix

The first thing that is brought to one's attention as he glances over the salient points of interest in this case is the fact that the patient is a relatively young man with a past history that is essentially negative. He comes to the hospital complaining of pain in his back radiating up into the neck and head but finally localizing definitely in the left side. The next series of symptoms are those of hemorrhage, first from the lung and then from the nose. The patient also gives a history of vomiting up small amounts of clotted blood; this, however, could all be explained from his persistent epistaxis, which we are of the opinion is not a primary nasal condition, but due to some general systemic disorder.

Epistaxis is divided under two general heads: first, with bleeding due to some primary nasal condition; second, to some systemic disease. Of these general systemic conditions, the most common are diseases of the blood vessels and organic diseases of the heart, liver, lung and kidneys. Of this group we immediately look to some circulatory change which definitely presents itself to explain the condition of which this young man died.

This man has a definitely enlarged heart with a blood pressure of 158 over 90 and aortic second sound greater than pulmonic second sound. Except in the advanced stages of the disease, when secondary changes may have occurred in the kidneys as a result of myocardial insufficiency or of sclerosis of the renal arteries, the urine is usually normal or contains but a trace of albumin and a few hyaline casts. Functional tests indicate no reduction in the efficiency of the kidneys. Ophthalmoscopic examination may reveal nothing abnormal, although in cases of long standing it frequently shows sclerosis of the retinal arteries, retinal hemorrhages, and even arteriosclerotic retinitis.

The blood picture in this condition is a result of the gradual increasing cachexia which results from these conditions and a secondary anemia from his persistent epistaxis.

I am making a diagnosis of essential arterial hypertension, associated with a low grade nephritis.

Discussion by Orville H. Brown, M. D., Phoenix

The illness in this case dates definitely from a severe chilling about seven weeks prior to death. The history of chest pain, headache, loss of appetite, lassitude and dyspnea, seem to warrant the assumption that a respiratory tract infection resulted from the chilling. The infection must have been of a low grade. The man continued for three weeks to work, the chest pain was severe. There is no testimony as to what influence the respiratory movements had upon the pain. Presumably the pain was more muscular than pleural.

The epistaxis, the hemorrhage within the eye and the red cells in the urine point to a hemorrhagic tendency. As this had come since the chilling it probably resulted from the infection.

The low hemoglobin and the 2,500,000 erythrocytes point to a severe grade of anemia of a secondary type, presumably from hemorrhage.

The brown vomitus may have been from blood which was swallowed or there may have been bleeding from the gastric mucosa.

The absent free hydrochloric acid and the 95 total acidity is difficult to understand, but probably points to a delayed emptying of the stomach.

Blood pressure of 158/90 is a mild grade of hypertension. There was moderate cardiac dilation. The retention of urea in the blood, together with negative phthalein excretion indicates nephritis. The nephritis was probably acute dating from the chilling. His becoming drowsy, apathetic and disoriented indicates uremia.

The sudden cessation of respiration without warning is probably best explained by a medulla hemorrhage.

Diagnosis:

Acute glomerular nephritis.
Secondary anemia.
Uremia.
Medulla hemorrhage.

Discussion by J. Madison Greer, M. D., Phoenix

This is quite an interesting case and one that considerable time should be spent on in discussion. The important points in the case are,—backache in dorsal region of back, probably aching rather than cutting; blood streaked sputum, nose bleed, dyspnea; blood low in reds and low in hemoglobin; heart or rather chest presenting strong impulse at fifth interspace 9 cm. to left.

We must think of the race of the individual and also the fact that he is probably older than his years. The pulse rate and temperature curve, as well as the leukocyte count, would rule out any acute inflammatory condition. Also we find in the physical examination that the lungs were clear.

Because of the pain in the back we must think of something in connection with the spine. In the dorsal region the first thing we think of is tuberculosis or Pott's disease. The other things that would give pain in the back are osteomyelitis of the vertebrae, typhoid spine (whatever that is), aneurism, mediastinal tumor. There are also some forms of neuritis. Because of the findings of bloody sputum, nosebleed and blood in the stomach content we can almost rule out a simple Pott's disease. If we had an osteomyelitis the clinical course should be that of an inflammation. Aneurism or mediastinal tumor would by pressure cause the pain and aching in the back. Because of pressure or erosion it would cause the hemorrhagic condition that we find here as well as the dyspnea. The impulse beat indicates something abnormal in the region of the heart or the aorta, probably the descending. This impulse could be produced by either an aneurism or tumor. The fact that the Wassermann, Hinton and modified Hinton were negative does not, to my mind, rule out aneurism.

I believe that in so far as the blood picture is concerned we can probably rule out any one of the rarer blood conditions. It is stated that the platelets appear normal. The shape and morphology of

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THE EVIL EYE IN THE TWENTIETH CENTURY

Some few years ago, there was much talk over the backwardness of intellectual progress in our boasted American civilization, this comment arising from certain incidents which came to light in the backwoods of Pennsylvania. Some people there resented what they called "spells" exerted by enemies, these evil influences causing sickness and death. When resentment took the form of physical violence, the matters reached the courts and then the news channels. Newspapers and magazines grew fervid in their wonderment that such dense ignorance could survive in the very shadow of great schools of learning, comparing the Voodooism of ignorant negroes and the witchcraft superstition of early colonial days.

So far as we remember, no one called attention to the fact that exactly similar ideas are taught and believed by cults in every large center in this country; that a rich and powerful organization has developed in that very hub of culture which was most scornful of Pennsylvania for harboring such ignoramuses as these believers in the evil eye.

This cult of pseudoscientists teach, among other peculiar beliefs, that one may sit across the continent and by thinking a person is sick can make him sick, and by thinking hard enough can even kill him. It is fairly well known that these (anti) christian (pseudo) scientists hold to the idea that a person can make himself sick by believing he is sick. This is not original with the cult, being a well known physiological and psychological fact, known to medical practitioners for ages. However, it is not generally known that the cult also believe in the evil eye,—under the more pleasing terminology of malignant thought or mesmeric influence, or some such vague and indefinable expressions. The fundamental meaning is no whit different from that which caused the Pennsylvania mountaineer to seek out his enemy and shoot him, nor is it very far removed intellectually from the belief of the southern negro who dreads a spell of evil and carries a rabbit foot to ward it off. A lopsided education has enabled the twentieth century religo-medical successors of their primitive ancestors to hide the crudities of their belief behind a fantasy of words. Their "good thoughts" are protective to the same degree as Sambo's rabbit's foot; the evil thoughts which beset them and which must be resisted, are no different from the evil eye which was thought to have been left behind in the Dark Ages. The vocabularic vestiture is different; the enclosed idea is the same. The evil eye is still with us.

The editor was recently taken to task by one of the adherents of this cult because he expressed the belief that a certain man who has arteriosclerosis and vascular nephritis would not live long. We were told that this expressed belief had reacched the ears of the man and caused him to come down with "mesmeric fear;" that the man's "practitioner" was having considerable difficulty controlling his illness because of this belief held by us and others who knew the man; that if we continued to believe this man is going to die, doubtless he will die and we will have killed him. This is an astounding "religious" belief and shows us that, in spite of intellectual veneer, we are not far removed from the day when the air was filled with evil spirits and good spirits contesting for the mastery of our bodies. Nowadays, instead of offering sacrifice to Moloch, we seek to ward off evil by "good

thoughts." Having mentioned Moloch, it occurs to us that the ultimate outcome of Moloch worship and Mrs. Eddy worship is too often the same,—a sacrificial victim. To a dead child it matters little whether he is burned in the jaws of Moloch or killed by ignorance.

PECOS VALLEY MEDICAL SOCIETY

The twenty-second annual meeting of the Pecos Valley Medical Society is being held in Roswell, N. M., on November 21st. This society is a regular district organization affiliated with the state and national organizations. It serves the physicians of eastern New Mexico, being organized twenty two years ago by the physicians of the counties of Chaves, Eddy, Lincoln, Roosevelt and Curry. Later, the counties of Lea, DeBaca, Quay, Union, Guadalupe and Otero were included. The purpose of the organization is to promote acquaintances and good fellowship, and encourage the study of medical progress.

The Society holds a one day meeting each fall, with a luncheon at which the discussion centers about subjects pertaining to the good of the medical profession of Pecos Valley and eastern New Mexico.

A full report of this year's meeting will shortly appear in this journal.

HOTEL DIEU (El Paso) STAFF MEETING

April 1931

DR. GALLAGHER opened the program of case discussions by presenting a case of traumatic injury to the thorax. B-4563, man, 22 years of age, admitted to the hospital March 4, with two wounds in the chest, bullet in the muscles of right side in posterior axillary line. Right lung was dull and flat up to 3rd space with absence of breath sounds, breath sounds increased above with increase in resonance. Dullness about two spaces higher in midaxilla. X-ray showed an area of density, right lung, extending up from diaphragm to just below 3rd rib anteriorly and 6th rib posteriorly. There is a suggestion of fluid. Large amount of air in the soft tissues just above the clavicle at axillary line. A shadow of a bullet is seen in the soft tissues at axillary line opposite 7th rib. Not able to obtain fluid by aspirating. Sounds gradually cleared up, evidently injury to and bleeding in the lung gave signs of consolidation in the lower lobe. Patient dismissed from hospital March 25, in improved condition.

Generally speaking, in cases of abdominal wounds it is advisable to operate but greater danger is encountered in chest operations on account of the proximity to the heart. Hemothorax may occur but rarely goes above the 3rd rib and if time is allowed for absorption, very rarely is there pleural shock. Allow the patient complete rest. In case of a sucking wound close with sponges or wet dressings and check paradoxical respiration. In case of fractured ribs immobilize patient and make as comfortable as possible. Much hemothorax and empyema were seen during the war and in many instances danger incurred was from dirt in clothing. It is safe to wait 24 to 48 hours after injury for developments. If a chest is opened and a positive pressure apparatus not available, patient is liable to develop mediastinal flutter and die. In case of mediastinal flutter apply positive pressure, ether by tube method and nitrous oxide and oxygen. In open chest wounds seepage of blood through mediastinum and hemorrhage of lung are rare. In rapid sucking wounds of the chest it is infrequent for the lung to fill the hole, but if lung does fill the gap it is better to leave it undisturbed than to subject patient to additional risk. Bilateral wounds are very dangerous and a collapse of both sides produces fatality. In case of collapsed lung either post-operative or from injury, symptoms are the same, fixed diaphragm, cyanosis, fast pulse, no breath sounds. For foreign body a bronchoscopy is better than cutting down on lung. Pleural epilepsy is very rare. Complicatious are infarct and empyema. Pulmonary abscesses are rare. Secondary hemorrhage may occur in two or three days or even two weeks after operation. Let patient rest 24 hours and tap to relieve distress. In some cases infarct is mistaken for bronchopneumonia, impression that of lobar pneumonia which is a common complication. There are three things to consider in chest operations,—preparation, anesthesia and location. General anesthetic is better than local in chest wounds low on chest wall. Transverse incision in area of diaphragm if chest wall is to be entered, lay flap back, remove the rib and make incision through periosteum. Another method is incision between ribs and use of rib spreader.

DR. HARDY stated that empyema must be very rare following hemothorax and that evacuation of blood from lung is not necessary. Rest gives good results and in case of mediastinal flutter, turn patient on stomach.

DR. GOODWIN presented three cases of fracture of os calcis. In presenting these cases and showing actual results, he stated that in many cases the x-ray shows only a single fracture, where incision will reveal many pieces of free bone. Most of these particular fractures are received in falls. First patient fell from a house two years ago, could not step without pain, not able to rest at night and was losing weight. Incision was made, bones adjusted, triple arthrodesis done, cast applied. Now the patient has relief, goes to his work, is having no pain, feels a little tired after day s work. The second case of comminuted fracture of right os calcis, seen six months after injury. A triple arthrodesis was done, patient now going about work, pain relieved. Third case (B-4347) admitted January 29, 43 days after injury. Bilateral fracture of os calcis. Triple arthrodesis was done on right foot and foot placed in cast Feb. 14. Incision into left foot Feb. 23, revealed astragalus jammed down to sole of foot, free pus in body of astragalus and os calcis, many free pieces of bone in tarsal region. All remains of articulation were removed, the foot placed in the best functioning manner, wound closed and case applied. On March 16 triple arthrodesis was done and short leg cast applied. Patient dismissed from hospital April 8.

DR. RAMEY has seen many cases, which if allowed to go untreated will result in ugly deformity feet turned out, tibia pushed down in inner side, feet weak and painful. Much more simple to treat these injuries at once. Under anesthetic, if much deformity, lengthen the tendo-achilles, pull os calcis down, invert the foot and place in cast, with good results.

DR. GOODWIN said that if the fracture is linear it is a simple matter to lengthen the tendo-achilles but when the fracture is in the joint, greater difficulty is encountered and a cast will not relieve the pain.

STAFF MEETING OF HOTEL DIEU (El Paso), May, 1931.

DR. J. L. GREEN presented a case of lobar pneumonia complicated by acute empyema. (This case with its discussions is published elsewhere in this issue.)

DR. MURPHY presented a case of intussusception, an infant, age two months, who became ill 24 hours before admission to hospital, with nausea and vomiting. A physician was not consulted until child had been ill 20 hours. Admitted to the hospital with a temperature of 105, pulse 140, respiration 28. Physical examination revealed a tumor mass in the right side. Operation revealed the small bowel invaginated into the large bowel, appendix also carried in. Mass reduced by compression at the left end, pulling on small bowel not effective. Patient's condition bad on account of dehydration and duration of illness. Oxygen given without results, patient died in short time.

DR. BAKER discussed a case of a patient who had been treated previously to admission to hospital, gunshot wound of leg, left calf. Bullet passed through and through the calf of the leg and a gauze drain had been used. A larger incision was made at the point of entrance and exit down through the fascia, wound irrigated thoroughly and rubber drains were left in. Temperature ranged from 101 to 102, infection well developed and inflammation spread to the knee, efforts to check it were unsuccessful and patient died.

A second case of a gunshot wound of left chest and abdomen was discussed by Dr. Baker. Bullet entered posteriorly about the 10th rib below angle of scapula and wound of exit just lateral to midclavicular line and 4 cm. below costal margin, the 10th rib was fractured. Spleen cut about half in two by the bullet and free bleeding into abdominal cavity. Patient's condition did not permit removal of spleen, developed peritonitis and died on the 4th day.

A third case presented by Dr. Baker was that of a case of lobar pneumonia who had been ill ten days before admission to hospital. Pulse irregular, respiration rapid and noisy; on account of this it was difficult to get heart sounds. Temperature practically normal on admission, shot up to 104 and patient died in 12 hours.

CASE OF EPISTAXIS LASTING A WEEK

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the reds are not given. It is probably a secondary anemia. It is not uncommon to have hemorrhages of this sort in either aneurism or mediastinal tumor. The marked increase in blood urea nitrogen was no doubt a terminal thing.

Without further discussion I should like to venture a diagnosis of—first, mediastinal tumor, or retromediastinal tumor; second, aneurism of the descending aorta. Secondary anemia.

Discussion by Fred C. Jordan, M. D., Phoenix

This is undoubtedly a nephritic death. What type of nephritis did he have? While the past history is very vague, he must have had a nephritis for a long time. It is not uncommon for an acute nephritis to follow a thorough chilling of the body and if there is an old nephritis, it may become distinctly aggravated and uremia may ensue. The dull pain in the thoracic portion of the back was probably due to a pericarditis which is not uncommon in nephritis.

In chronic glomerular nephritis, third stage, you would expect symptoms very similar to these, though usually more albumen and casts are found in the urine. This type of nephritis may or may not be associated with edema and practically always terminates in uremia. The blood pressure is always high; the pressure in this case (158/90) is considerably lower than we would expect in any nephritis with a terminal uremia.

Arteriosclerotic nephritis; we would not expect this type in a man of 29; the blood pressure is not as high as usual and you would expect more signs of cardiac failure.

The blood picture is that of a secondary anemia which could be due to continuous epistaxis, or the anemia associated with a chronic nephritis. Positive blood in the vomitus and no free Hcl in gastric juice might suggest carcinoma or pernicious anemia, but the age of the patient, lack of gastric symptoms and negative blood picture should rule out these two diseases.

Acute nephritis with uremia should give urine loaded with albumin and casts. Acute yellow atrophy of the liver may cause epistaxis, headache, delirium, insomnia, severe muscular twitching. It is a rare disease and negative stool examinations should rule it out.

My diagnosis is uremia, chronic glomerular nephritis; probably pericarditis.

Pathologic Discussion by S. Burt Welbach, M. D. Boston

ANATOMIC DIAGNOSES

Chronic glomerular nephritis.

Bronchopneumonia.

Our diagnosis was chronic nephritis. It was the end result of one or two or numerous exacerbations of glomerular nephritis. There was moderate bronchopneumonia. Most of the lung lesions had the characteristics of those produced by hemolytic streptococci.

BOARD OF MEDICAL EXAMINERS OF THE STATE OF ARIZONA

The following are the names of the applicants for examination and reciprocity, acted upon favorably by the Arizona State Board of Medical Examiners, at the meeting of October 6th and 7th, 1931. There were 14 applicants for examination, 12 of whom passed. They are:

Dr. Richard Leslie Ward, a graduate of the College of Medical Evangelists, 1930. Dr. Ward is to be located at Buckeye, Arizona.

Dr. David B. Snelling, a graduate of the Harvard Medical School, 1929. Dr. Snelling is to be located at Tucson, Arizona.

Dr. Frank Milton Kilgard, a graduate of the University of Illinois, 1929. Dr. Kilgard will be in Phoenix, Arizona.

Dr. Melvin Lloyd Kent, a graduate of the University of Louisville, 1930. Now located at Mesa, Arizona.

Dr. Peter Bowen Hoover, a graduate of Indiana University School of Medicine, 1930, will be in Phoenix, Arizona.

Dr. Donald Frederick Hill, a graduate of the University of Cincinnati Medical College, 1929. Dr. Hill is to be located at Tucson, Arizona.

Dr. Kerneth A. Herbst, a graduate of the University of Minnesota Medical School, 1930. Dr. Herbst is to be located at Springerville, Arizona.

Dr. William Roy Hewitt, a graduate of the Rush Medical College, 1931. Dr. Hewitt is to be located at Tucson, Arizona.

Dr. Harry F. Gerner, a graduate of the University of Maryland School of Medicine, 1930. Dr. Gerner is to be located at Tucson, Arizona.

Dr. Palmer Dysart, a graduate of the Northwestern University of Medical School, 1930. Dr. Dysart will be located in Phoenix, Arizona.

Dr. David E. Brinkerhoff, a graduate of the

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Stanford University School of Medicine, 1929. Dr. Brinkerhoff will be located in Phoenix, Arizona.

Dr. Austen G. Allen, a graduate of the University of Toronto, 1931. Dr. Allen is to be located at Tucson, Arizona.

The following applicants were licensed to practice in Arizona by reciprocity:

Dr. Milton C. Wiggins, a graduate of the University of Tennessee, 1915, now located in Paris, Tenn. By reciprocity with Tennessee.

Dr. Francis Tweddell, a graduate of the College of P. & S., Columbia University, 1907, now located at Plandone, N. Y. By reciprocity with New York.

Dr. Henry Stidham of Safford, Arizona, a graduate of the College of P. & S., Little Rock, Arkansas, 1919. By reciprocity with Arkansas.

Dr. Leon Thayer Stem, a graduate of the University of Tennessee, 1909, now located at Chattanooga, Tenn. By reciprocity with Tennessee.

Dr. William R. Lyon, a graduate of Jefferson Medicine College, 1895. Now located at Glenfield, Pennsylvania. By reciprocity with Pennsylvania.

Dr. Julius G. Kelley, a graduate of Tufts Medical School, 1924. Now located at Pocasset, Mass. By reciprocity with Mass.

Dr. Harry S. Jones, a graduate of Starling Medical College, 1895. Now located at Ash Fork, Arizona. By reciprocity with Ohio.

Dr. Charles N. Greusel, a graduate of Creighton Medical College, 1910. Now located at San Bernardino, California. By reciprocity with Montana.

Dr. Frank W. Gale, a graduate of Beaumont Medical College, 1900. Now located at Tucson, Arizona. By reciprocity with Missouri.

Dr. Harry LeRoy Franklin, a graduate of Tulane University Medical School 1917. Now located at Phoenix, Arizona. By reciprocity with California.

Dr. William Leslie Bell, a graduate of the Medical Department University of California, 1898. Formerly located at Oakland, California. By reciprocity with California.

B. M. BERGER, Sec'y.

DALLAS SOUTHERN CLINICAL SOCIETY NEWS

Throughout the summer, the Executive Committee of the Dallas Southern Clinical Society has held weekly meetings perfecting plans for the society's Fourth Annual Spring Conference to be held in Dallas March 28 to April 1, 1932, inclusive. Preparations are already far in advance of those for last year. This society, whose sole purpose is to make available to the doctors of the South the post-graduate teaching material of Dallas, has held three notably successful annual meetings which have occasioned much favorable comment. The attendance last year was just short of 1,200, and plans are being made to entertain at least 2,000 in 1932.

Twenty of this country's most distinguished medical teachers have accepted invitations to appear in General Assemblies, Hospital Clinics, and Round Table Luncheons. Ninety-six hours of post-graduate teaching have been arranged in courses in limited groups. Elaborate Scientific and Technical Exhibits, motion pictures and other attractive features are being planned. The Dallas Southern Clinical Society extends a cordial invitation to all of the doctors of the South and Southwest to be present March 28 to April 1, 1932.

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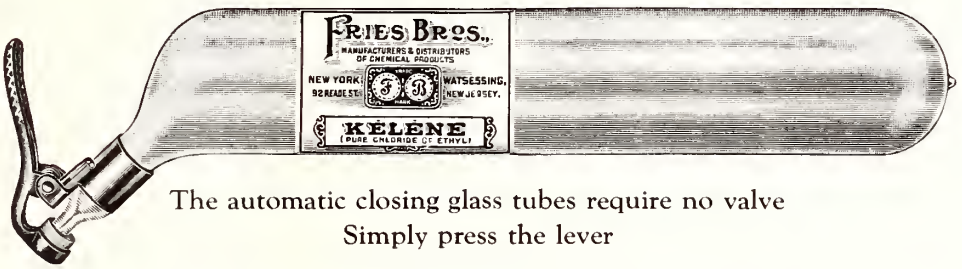

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Dr. Samuel A. Levine, Boston.
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Dr. Albert H. Rowe, Oakland, Calif.
(Allergy and Endocrinology.)
Dr. Thomas R. Brown, Baltimore.
(Gastro-enterology.)
Dr. Joseph Collins, New York City.
(Neurology-psychiatry.)
Dr. Udo J. Wile, Ann Arbor, Mich.
(Dermatology.)
Dr. McKim Marriott, St. Louis.
(Pediatrics.)
Dr. Lee W. Dean, St. Louis.
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Dr. Joseph Beck, Chicago.
(Oto-laryngology.)
Dr. Wm. L. Benedict, Rochester, Minn.
(Ophthalmology.)
Dr. Frank L. Lahey, Boston.
(General Surgery.)
Dr. J. Shelton Horsley, Sr., Richmond, Va.
(General Surgery.)
Dr. Carl Hedblom, Chicago.
(Chest Surgery.)
Dr. William O'Neill Sherman, Pittsburgh.
(Industrial Surgery, Orthopedics.)
Dr. Paul Titus, Pittsburgh.
(Obstetrics.)
Dr. Edward H. Richardson, Baltimore.
(Gynecology.)
Dr. Herman L. Kretschmer, Chicago.
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It resembles breast milk, having the same percentage composition and in addition, the same buffer value, depression of freezing point, specific gravity, hydrogen ion concentration and caloric value. It is also interesting to note that the fat in S. M. A. has the same character numbers as breast milk fat, such as Polenske, Iodine, Reichert Meissel, Saponification, Melting Point and Refractive Index. Sufficient cod liver oil is incorporated in this fat to make it anti-rachitic.

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SOME BONE CHANGES PRODUCED BY DISEASES OF THE HEMATOPOIETIC SYSTEM. J. W. Pierson, M.D., Baltimore. Sou. Med. Jour., 24:191 (March, 1931).

Of the anemias, the congenital forms produce the most interesting bone changes, the result of chronic overstimulation of the bone marrow. The great increase in the number of young red blood cells in the bone is accompanied by a hyperplasia which causes the bone marrow to swell, producing increased pressure on the cortex; the cortex becomes thin and allows the bone to expand, registering on the roentgenogram by increase in size of the shaft of long bones and depth of flat bones. The bones appear to be more porous than normal and present a very mottled appearance. Late in the disease when the bone marrow is replaced by new bone, striations are seen in the marrow cavity of long bones. In leukemia, where the bone marrow fat is largely replaced by new blood cells, the roentgenograms show areas of lessened density giving a mottled appearance to the marrow cavity; the cortex is thinner than normal and the periosteum elevated; the picture is somewhat similar to that found in the anemias. In Hodgkin's disease sometimes striking changes in bones are found; the bones begin to

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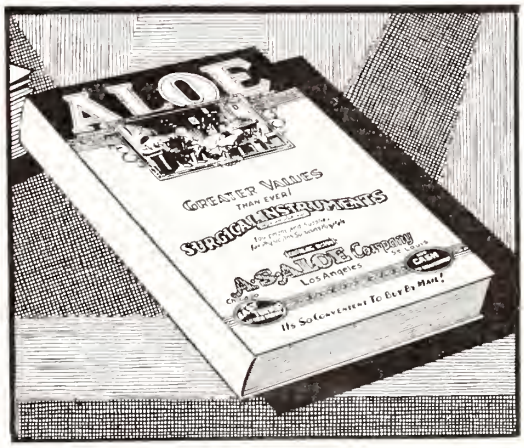

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change their appearance when the fibrotic stage is reached, at which time they are quite porous and give mottled appearance; later areas of necrosis are represented by numerous discrete areas of lessened density scattered throughout the caseous system. At times a large area of bone destruction is found resembling neoplasm. In Gaucher's disease, the course is very chronic and various stages of bone change may be found. The replacement of the normal by abnormal cells is indicated by areas of increased density, with increase in diameter of long bones, of depth in flat bones and of vertebral bodies; periosteum is thickened, and the picture may be confused with osteomyelitis (chronic).

In many of these cases, all factors must be considered in order to make a correct differential diagnosis.

UROSELECTAN, A RADIOLOGICAL AND UROLOGICAL STUDY. Bransford Lewis, M.D., B. Sc., F.A.C.S., Grayson Carroll, M.D., F.A.C.S., and Martyn Schattyn, M.D., A.B., St. Louis. Sou Med. Jour., 24: 206, (March, 1931).

Cystoscopic urography is not always practical and the method of examination by uroselection is supplementary. Each method of examination has its place. Cystoscopic technic gives roentgenograms which are superior to those following uroselectan; their evidence is positive while that of uroselectan; is negative. In the technic, the patient drinks freely of fluids the day before injection and the intestines as free from contents as possible. Take a "flat" roentgenogram before the injection. The technic advised by the authors of this method is followed, except that the time is reduced to ten minutes. From three to five roentgenograms are taken according to the requirements of the case. It has been shown that normally 90 per cent of the uroselectan injected is eliminated by the kidneys, 60 per cent in the first two hours, 25 per cent in the next four hours, which facts may be utilized in making roentgenograms. A child of seven years receives one-half and one of two years one-fourth the adult dose. There is no object in dividing the dose between the two arms as suggested by some. Six cases are cited.

LIMITATION OF THE MANUFACTURE OF NARCOTIC DRUGS. In accordance with the provisions of the Hague convention of 1912, Congress made laws for controlling and regulating the production of and the traffic in the drugs mentioned by the convention. Now domestic production and traffic in these dangerous drugs is limited by federal law. The importation of opium and coca leaves into the United States is restricted. The enforcement of the laws have, however, not prevented the importation of drugs for illicit uses. Introduction of narcotic drugs by smugglers cannot be prevented until other countries control the manufacture and export of narcotic drugs adequately. To this end our government initiated the movement which resulted in the calling of the International Opium Commission at Shanghai in 1909 and since then has continued in its efforts along these lines. The manufacture of narcotic drugs must be limited to approximate medicinal and scientific needs. Physicians must aid in the determination of such needs by limiting their own prescribing to indispensable uses. The pitiful character of the drug addict and the association of drug addiction with crime and other menaces to the public welfare demand all the help that physicians can give in solving this problem. (Jour. A.M.A., May 9, 1931, p. 1623.)

LEUKOPLAKIA BUCCALIS: A STUDY OF EIGHTY CASES. Howard King, M.D., and C. M. Hamilton, M.D., Nashville, Tenn. Sou. Med. Jour., 24: 380, (May, 1931.)

Leukoplakia rarely occurs in youth. Tobacco is the most prevalent etiologic factor, syphilis playing a minor role. It is resistant to treatment. Leukokeratoses are removed by electrocoagulation, the radium plaque not being used at present, having been tried and found unsatisfactory. This seems strange because the best results on lip lesions have been secured with x-ray, giving from three to five skin units. Where carcinoma has developed, they were irradiated with radium and destroyed by electro-coagulation immediately afterwards. Mild lesions of leukoplakia over large areas should not receive strong applications.

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After a starvation period of twelve to twenty-four hours on boiled water or gelatin water (⅓ oz. of gelatin to one pint of boiled water), the infant should be given Protein S. M. A. (Acidulated) diluted 4 level tablespoons with 9 ounces of water, and without any additional carbohydrate.

	1st Day	2nd Day	3rd Day*
Severe cases	3 oz.	6 oz.	9 oz.
Medium cases	10 oz.	15 oz.	20 oz.
Mild cases	15 oz.	30 oz.	

After 48 hours or when the stools become normal, SMACO (400) Maltose and Dextrins (Spray Dried) should be added gradually, beginning with one oz. to the quart, and increasing until the infant is gaining steadily in weight. In certain cases, it may be necessary to increase the carbohydrate to a total of 12 to 15% (3 to 4 oz. of carbohydrate to the quart).

* Until the proper amount for their age and condition is reached, which is 200 c.c. per kilo of body weight per twenty-four hours, or three ounces per pound of body weight per twenty-four hours. However, the total twenty-four hour intake need not go above thirty-two to thirty-five oz. or 960 to 1050 c.c.

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Brain tumors are more prevalent than the profession realizes. Routine autopsies performed on all patients who die in the City Hospital in Vienna showed that one out of four thousand cases had some type of cranial neoplasm. In other words, in every community of ten thousand people, there are at least two people suffering from a brain tumor.

With this fact in mind, every effort should be made to diagnose and localize these tumors before it is too late, always remembering that few cases are typical until after the optimum operative period has passed.

The classical triad of headache, vomiting and choked disc is seldom found in entirety The presence of one of these conditions with gradually progressing neuro-logical symptoms, is sufficient to warrant the diagnosis of potential tumor, and every step should be taken to determine the presence and location of a tumor mass.

Surgery is the only adequate therapy. X-ray should never be used until after operation, as some types of glioma are activiated by radiation and in all types, oedema is produced, that will invariably aggravate the patient's symptoms and may even cause death.

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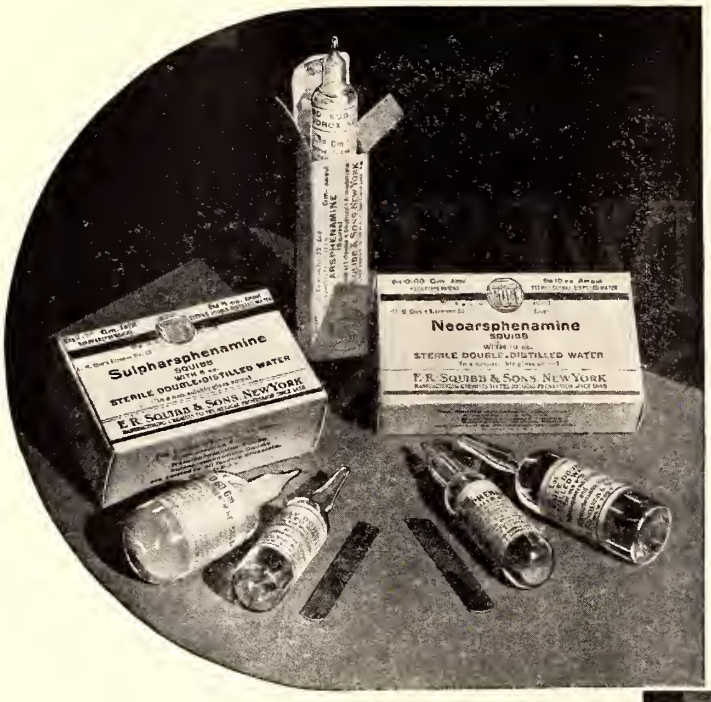

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	℈ Grams	Prot.	Fat	Carb.	Cal.
2 teaspoons Knox Sparkling Gelatine	4.5	4	..	..	..
¼ cup cold water	..	..	..	..	..
½ cup hot water	..	..	..	..	..
½ teaspoon salt	..	..	..	..	..
¼ cup vinegar	..	..	..	..	..
1½ cups grated cheese	150	43	54	..	..
½ cup chopped stuffed ollves	70	1	19	8	..
½ cup chopped celery	60	1	..	2	..
¼ cup chopped green pepper	25	..	..	1	..
⅓ cup cream, whipped	75	2	30	2	..
Total		51	103	13	1183
One serving		8.5	17	2	197

Soak gelatine in cold water. Bring hot water and salt to boil and dissolve gelatine in it. Add vinegar and set aside to chill. When nearly set, beat until frothy, fold in cheese, olives, celery, pepper and whipped cream. Turn into molds and chill until firm. Unmold on lettuce leaf and serve.

SPANISH CREAM *(Six Servings)*

	Grams	Prot.	Fat	Carb.	Cal.
1 tablespoon Knox Sparkling Gelatine	7	6	..	..	..
¼ cup cold water	..	..	..	..	..
1 cup milk	240	7	10	12	..
¾ cup boiling water	..	..	..	..	..
2 eggs	100	13	10.5	..	..
1½ teaspoons vanilla	..	..	..	..	..
Few grains salt	..	..	..	..	..
Total		26	20.5	12	336.5
One serving		4	3	2	56

Soak gelatine in cold water five minutes. Heat water and milk over boiling water, add gelatine and stir until dissolved. Separate eggs and beat yolks until lemon colored. Stir gelatine mixture slowly into egg yolks. Return to stove and cook over boiling water until mixture begins to thicken. Remove from stove, add vanilla and salt and chill. Beat egg whites until stiff and fold into jelly when almost set. Mold and chill until firm.

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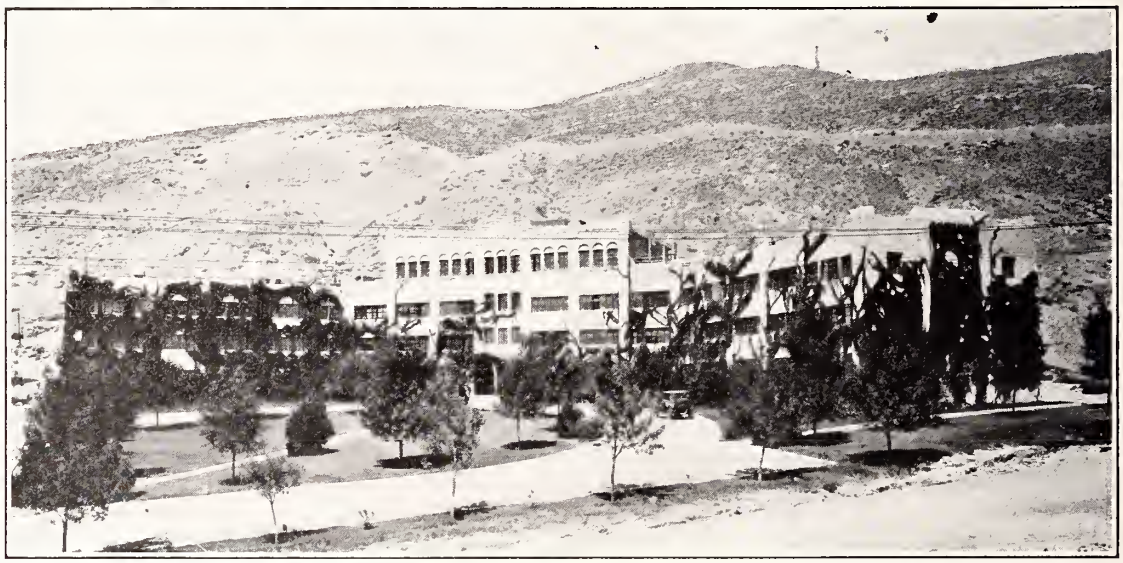

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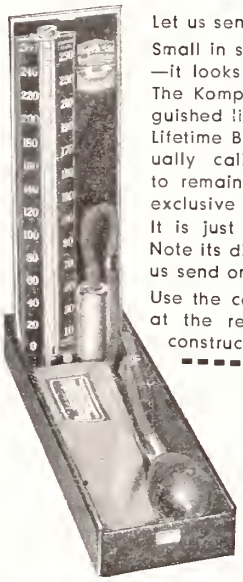

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Relative Values of Carbohydrates

New Findings Confirm Old Truths

Recent scientific investigations in rats (tabulated at the right) are in accord with many years of clinical observations on babies, as shown by the following excerpts from authoritative medical literature reflecting the consensus of three decades of pediatric experience.

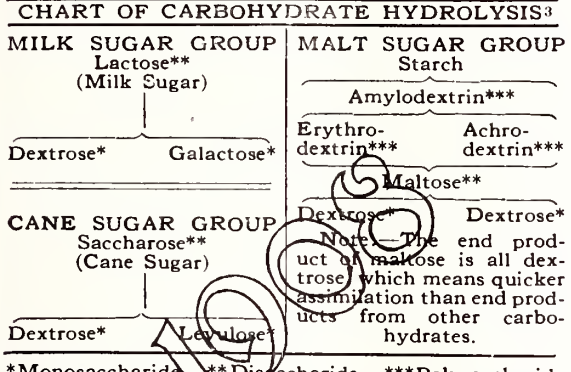
RELATIVE ASSIMILATION VALUES OF VARIOUS CARBOHYDRATES[1]

		Average per 100 gms. body weight
1	MALTOSE	1.50
2	DEXTRIN + MALTOSE	1.32
3	Glucose + dextrin	1.32
4	Glucose + sucrose	1.32
5	Glucose	1.04
6	Sucrose + maltose	0.98
7	Fructose + glucose	0.98
8	Sucrose + dextrin	0.76
9	Sucrose	0.76
10	Fructose	0.5
11	Glucose + lactose	0.26
12	Lactose	0 16
13	Galactose	0.1

These authors have also stated: "Maltose, fructose, glucose, starch and dextrin *lead* in nutritive value, *followed by* galactose, mannose, arabinose, xylose, lactose, sucrose and glycogen.[2]

[1] H. Ariyama and K. Takahasi: *Biochem. Z.*, **216**:269 (1929) and [2] *J. Agr. Chem. Soc.*, Japan 5; 674 (1929).

CHART OF CARBOHYDRATE HYDROLYSIS[3]

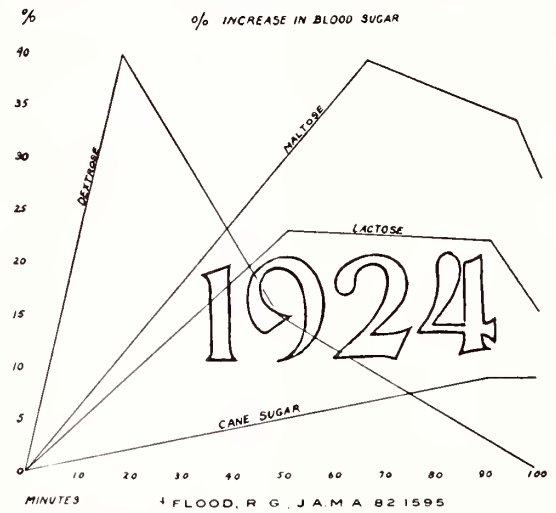


*Monosaccharide **Disaccharide ***Polysaccharide

Of the monosaccharides, dextrose, the end product of maltose, is converted into glycogen more easily than levulose or galactose. Therefore, maltose, which splits into two molecules of dextrose, may be absorbed with much less digestive energy than either lactose or saccharose.

[3] Morse, J. L. & Talbot, F. B. *Boston Med. & Surg. Jl.*, **159**:852.

RATE OF SUGAR ABSORPTION IN NEWBORN[4]



MALTOSE OR LACTOSE IN INFANT FEEDING[5]

Answer—The superiority of one form of carbohydrate over another in artificial feeding of infants has been much discussed during recent years. It is generally accepted that cow's milk without modification is not a satisfactory infant food. So far as the carbohydrate is concerned, about one-fifth to one-eighth ounce per pound of infant's body weight is required daily. To supply this amount it is necessary to add carbohydrates in some form. Admitting that lactose is the sugar supplied in human milk, it does not follow that it is the sugar best tolerated in another medium, such as cow's milk. It is generally believed that lactose is more laxative than sucrose—that it must be fed with a certain amount of caution, as fermentative upsets are likely to follow if amounts approximating that found in human milk are fed. There is cause for disagreement among clinicians, as it is important to consider the other food elements; i.e., the amounts of fat and protein fed as well as the medium in which they are fed. For example, when lactic acid milk is used, more added carbohydrate seems to be tolerated than when sweet milk mixtures are fed. Sucrose has the advantage of being much cheaper and is always available. Evidence has not been presented that it should not be used in infant feeding. With its general use in large infant welfare clinics where supervision is a matter of routine, there is less to be said against it as far as clinical results are concerned. The complaint that it is too sweet is not often encountered when the usual amounts are fed. The dextrin-maltose preparations possess certain advantages. When they are added to cow's milk mixtures, we have a combination of three forms of carbohydrates, lactose, dextrin and maltose, all having different reactions in the intestinal tract and different absorption rates. Because of the relatively slower conversion of dextrins to maltose and then to dextrose, fermentative processes are less likely to develop. Those preparations containing relatively more maltose are more laxative than those containing a higher percentage of dextrin (unless alkali salts such as potassium salts are added). It is common experience clinically that larger amounts of dextrin-maltose preparations may be fed as compared with the simple sugars. Obviously, when there is a lessened sugar tolerance such as occurs in many digestive disturbances, dextrin-maltose compounds may be used to advantage. [5] *Queries and Minor Notes, J. A. M. A.*, 88:266.

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AERONAUTICS AND MEDICINE

W. R. JAMIESON, M. D.
El Paso, Texas

President's Address

(Read before the Seventeenth Annual Meeting of The Medical and Surgical Association of the Southwest, held at Phoenix, Ariz., Dec. 3-5, 1931.)

Probably, there has always existed in the mind of man the desire to fly. Goldstrom[1] whimsically describes the mythical flight of one of the primitive flyers, as follows:

The name of the first experimental aviator has not been handed down to modernity. Probably, he was a man of pre-historic time. Conceiving the daring notion that the pterodactyl might be domesticated and ridden through the air, he decided, against the advice of family and friends, to attempt it.

Finding one of the great flying reptiles dozing on a rock in the sun, he managed to steal upon it and to fasten himself above and between its bat-like membranous wings. The next instant there was a fearful hissing squawk and a flapping and beating of huge pinions.

Terrified, but determined, the man found himself in the air. But it was only for a moment. With an angry toss of its writhing body, the pterodactyl freed itself of the impudent groundling and dashed him to the rocks below.

Down the ages, various attempts have been made to invade the air—mythical, apocryphal, and real. The first constructive advance toward this goal was made by the great Leonardo da Vinci (1452-1519) who fathered the idea of the helicopter and actually made models that would fly. Magoun and Hodgins[2] say:

It is of note that the helicopter principle, the first one to be definitely successful in achieving model flight, remains today the last one to be brought to any semblance of large scale practicality. Edison, five years after the Wright brothers' demonstration of the first successful motor-driven, man-carrying, free-flying machine, insisted that heavier-than-air flight would never be a success except upon the perfection of the helicopter principle.

To Da Vinci must likewise go the credit for the invention of the aerial screw from which has stemmed all successful present-day flight and all high-speed marine transportation—for the marine propeller is an adaptation of the aerial screw, not vice versa, as is commonly supposed.

Incidentally, Da Vinci was the first to propose the idea of a parachute.

From the time of Da Vinci until 1783, when the Montgolfier brothers sent up a balloon filled with, as they supposed, smoke, which arose to the height of 6000 feet and traveled nearly a mile and a half, there was little or no progress in aviation. Two months later Charles used hydrogen, discovered by Cavendish in 1766, to fill a balloon.

The first really successful flight of a heavier-than-air machine with a passenger was made by the Wright brothers, December 17, 1903, at Kittyhawk, North Carolina. The distance traveled was 852 feet. From this time until the outbreak of the World War, the airplane was in an experimental stage. Then the urge of necessity called for new means of warfare, resulting in rapid progress throughout the war and continuing to the present time.

There was a great rush of younger men to enter the air services of the various armies engaged. Anyone who had the courage to fly was enlisted. It was soon found that more than mere physical courage was required to make a flyer.

During the first year of the war, the British found that, of every hundred men killed, two were slain by the enemy, eight met death as a result of defective machines and ninety were killed as a result of their own individual deficiencies. Of these ninety, sixty deaths were due to physical defects.

As a result of this startling discovery, the British established a Care of the Flyer Service, selecting their aviators with due regard to their qualifications. As a result, at the end of the second year, their fatalities due to physical defects were reduced from sixty to twenty, and, at the end of the third year, from twenty to twelve.[3]

After the war, research into the medical problems of aviation increased tremendously.

Now, practically every country has a physical standard for air pilots. From this research work has arisen a new medical specialty known as aviation medicine. This involves a knowledge of physiology and medicine, of ophthalmology and otology, of psychology, neurology and psychiatry.

Since the war, aviation in the United States has progressed by leaps and bounds. Passenger and mail lines have made an intricate network in all directions. Privately owned planes have become comparatively numerous. In order to supervise civilian flying, the Department of Commerce, through its Aeronautics Division, has assumed control and promulgated rules and regulations governing it. Pilots and mechanics must be examined and certified as to their fitness. Planes must have the official seal of approval.

Civilian pilots are divided into five classes, viz.: student, private, industrial, limited commercial, and transport. There are three classes of physical examination, as follows: One for transport and limited commercial pilots, one for industrial pilots, and one for private pilots. The student pilot is required to take the private pilot examination.

Examiners should remember that the applicant, as a rule, is not ill. He does not complain, as does the ordinary patient. Therefore, it becomes the duty of the examiner to seek those defects that disqualify. He should impress upon the candidate that the examination is a protection to him, as well as to the public. If he is not fit to fly, surely he wishes to know it.

Regulations require that a candidate for flying honors shall be in perfect physical condition. His past history is carefully investigated with a view to determining the presence of any disease such as tuberculosis, syphilis, malaria, and asthma, that are disqualifying for obvious reasons. The presence of hernia or ankylosis of the arm or leg joints likewise disqualifies, as the amount of muscular effort in handling the controls on the large transport planes calls for free joint action and might cause strangulation of an existing hernia. Of course, all acute conditions disquilify until they subside.

Regarding the cardio-vascular system, particular attention must be paid to the blood pressure and the pulse rate, and their reaction to exercise. It has been found that candidates with moderately high blood pressure are better risks than those with low blood pressure, that is, with a systolic pressure of 100 or thereabouts. The latter class does not stand altitude nor the stress of flying. Many of them have vaso-motor instability expressed by profuse sweating, cold blue hands and feet, and a lowered systolic pressure after exercise. The examiner must be prepared to distinguish between the nervous elevation of blood pressure seen in applicants undergoing their first physical examination and the genuine increase due to organic trouble. The former usually disappears if the candidate is assured that his examination is proceeding satisfactorily, or if he is allowed to return, in a day or so, for further test. The pulse rate after exercise, such as hopping fifty times on one foot, ought to return to approximately normal or a few beats higher in two minutes.

Now we come to one of the two important parts of the examination—the eye and ear. Transport pilots are the custodians of the lives of the passengers they carry. Eternal vigilance must be theirs, not only straight ahead, but peripherally. Visual acuity must be perfect. As Bauer[1] says:

> Visual fields must be determined not only for form but for color, as restricted visual fields or scotomata may mean either beginning blindness or interference with night vision. He must detect navigating, airdrome, and signal panels; his map is printed in colors and the different shades of green and brown on the ground indicate the character of the terrain over which he is flying.

His ability to judge distance and depth must be within certain limits. The requirements for industrial, private, and student pilots, regarding visual acuity, are not so stringent as in the case of transport pilots, but nevertheless, if any flyer in these classes has not perfect vision, it must be corrected to normal with lenses before he can fly.

Hearing is not of particular importance in flyers. As long as the pilot can hear the functioning of his motor and the starting instructions of his mechanic, he can get along. Most pilots, flying more or less continuously, eventually become deaf from the constant roar of the motor. However, it is necessary that he have good hearing to start with, as, when he becomes deaf, unless he is a very experienced flyer, he is out of the game. Therefore, anything that might interfere with his hearing, such as chronic throat infection, closed Eustachian tubes, and so forth, should be remedied.

Of much more importance is equilibrium. Reams and reams have been written on the part the vestibular apparatus plays in maintaining equilibrium. The flyer is constantly changing his level. While he is flying in a clear atmosphere, he can regulate his machine through his eyes, but if he is going through clouds, he must depend on his deep muscle sense and his instruments.

Pilots flying through clouds or fog for some distance frequently find themselves very far from the level when they emerge; may even be up-side-down. Experiments at the Medical Research Laboratory of the Army seemed to prove that many normal individuals, when blindfolded, were unable to sense accurately the direction of even the more rapid and violent movements in stunting.

The deep muscle sense is difficult to test or define, but the pilot lays great stress on the pressure against his seat, the visceral sensations and other gravity effects. Combined with this is the tonic influence of the vestibular apparatus. O'Reilly[5] says:

> It would seem that the semi-automatic maintenance of aerial equilibrium depends not on the information derived from any one set of peripheral sense organs, but on the correct interpretation of afferent stimuli arriving at the cerebral centres from widely different sources, their correlation and proper utilization in conjunction with the sense of judgment resulting from the pilot's experience.

The second most important part of the examination is the neuro-psychiatric investigation, with which is closely allied the personality study. Not only should the psychotic and epileptic be detected, but also the psychoneurotic and epileptoid, the first two classes for obvious reasons, and the others from the fact that these conditions show definite nervous instability. Close questioning serves to show the applicant's reactions to mental and physical stresses in childhood, school life, sex matters, business and family affairs. Through this it is possible to eliminate the candidate who goes to pieces in an emergency or the one whose reaction to stresses is so slow as to be of little or no use. As Longacre says,

> The examination, to make a satisfactory forecast of the flyer's reactions to flying, must reveal latent tendencies which under the stress of flying might become so accentuated as to make him inefficient and lead to mental and nervous breakdown; or, on the other hand, make clear such stability of organization as will be proof against stresses admittedly exceptional and foreign to average experience. It is not conceded that nature has at last achieved her highest objective and in the flyer produces a superman. It is, however, required that he be equal to the requirements of the situation, usual or unusual, and with respect to the unusual, be capable of the instantaneous and correct response demanded by the emergency.

This is a brief resume of the safeguards elaborated by the Department of Commerce, not only to protect the public, but also the embryo flyer from himself and his physical defects. The examination, to be worth anything, must be meticulously carried out. This medical safeguarding does not cease with the entry of the pilot into the service. The transport and limited commercial pilots are examined every six months and the other classes yearly. Many of the large transport companies appreciate the value of periodical examinations and have their pilots examined monthly. The pilot's greatest bugaboo is "staleness", expressed by exaggerated reflexes, tired feeling, fast pulse and lowered blood pressure.

As a result of these regulations, many of the irresponsible, reckless pilots have been eliminated. Some, I regret to say, have been stricken from the list by death, the result of their own daredeviltries. The Great World War bred many of these, whose motto was, "Eat, drink, and be merry, for tomorrow we die." Nowadays, the transport pilots are a sober, serious-minded body of men, brave without being reckless. Night and day, through sunshine and storm, without heroics, they guide their planes with their precious human freight, realizing fully the enormous responsibility that rests upon them. When an emergency confronts them, they are cool and collected, and if a fatal issue ensues, the pilot will be found to have gone down with his ship, faithful to the end. If the pilot comes out alive, he sacrifices his own comfort to the safety of his passengers or mail, makes every effort to get in touch with outside assistance.

We have all heard of the terse report of the railroad man: "Off again, on again, gone again, Finnegan." The classic of the air mail service is the laconic report sent by Dean Smith: "Dead stick—flying low—only landing on cow—killed cow—wrecked plane—scared me. Smith."

Now let us see what effect these precautions have had on the accident rate. The report of the Accident Board of the Aeronautics Division for the first six months of 1931 deals principally with transport flying. During this period there were five fatal accidents of which three were passengers, in more than twenty million miles of scheduled flying. As compared with the corresponding period of 1930, the passenger miles flown per passenger fatality showed an increase of more than one hundred per cent. In the first six months of 1930, the miles flown per passenger fatality were 2,375,664; in the first six months of 1931, the passenger miles flown per passenger fatality were 5,277,989. This was due to an increase in the number of miles flown accompanied by a decrease in the number of passenger fatalities.

It is difficult to compare the statistics of motor car fatalities with those of airplane travel, but when we learn that 32,000 people were killed and 960,000 injured in auto travel in 1930, we must confess that, in the matter

of accidents, airplane travel compares most favorably.

In motor bus travel there has been a fatality in every 2,523,315 miles, and an injury in every 27,111 miles traveled. Compared with the statistics of airplane travel, the fatality rate is nearly twice as much as by airplane travel.

This country is covered with an intricate network of airplane routes, making 160,000 miles a day, and travel thereby is becoming increasingly popular. Many of us, I hope, will live to see the day when airplanes will be almost as common as motor cars are now.

REFERENCES

1. Goldstrom: A Narrative History of Aviation. MacMillan Company, 1930.
2. Magoun & Hodgins: History of Aircraft. Whittlesley House, 1931.
3. Bauer: Aviation Medicine.
4. Bauer: Aviation Medicine. Williams & Wilkins Co., 1926.
5. O'Reilly & MacKechnie: Aerial Equilibrium and Orientation. Canadian Medical Monthly, 1920, Vol. 316.

ROENTGEN EXAMINATION OF THE GASTRO-INTESTINAL TRACT

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(Read before the New Mexico Medical Society, at its Forty-ninth Annual Meeting at Albuquerque, N. M., May 20-22, 1931.)

Since Roentgen's discovery there has been an increasing value in the use of x-rays in diagnostic procedures. This is probably most marked in the roentgen studies of the gastro-intestinal tract. Improvement in mechanical equipment, better tubes, and faster intensifying screens, have been a stimulus to the roentgenologist to supplement routine x-ray studies with more detailed observation of certain regions under suspicion. Just as important a stimulus to more accurate studies has been the change of attitude on the part of the general medical profession toward the roentgenologist. He is no longer regarded as a medical technician to whom patients are sent for a series of films, or for this or that routine procedure, but as a clinical consultant who proves to be very helpful in making many clinical diagnoses.

The feeling that a series of good films and an interpretation of average intelligence will always produce a diagnosis which absolutely checks with clinical findings has disappeared. While many pathological entities offer a characteristic roentgen appearance and while it is amusing to make snap diagnosis from first inspection, it is now quite generally felt that the roentgen examination should entail a consideration of the clinical findings, to arrive at an accurate interpretation. Having been given a summary of the clinical and laboratory studies, it is often possible for the roentgenologist to offer helpful suggestions as to the choice of roentgen studies. This is of two-fold value: it may eliminate unnecessary procedures, and at the same time holds down the cost of examination; also, supplementary procedures can be used to advantage during the period of study. For example—if the problem is to differentiate a diseased gallbladder from duodenal ulcer, it is preferable to do the gallbladder studies first; or if a lesion is suspected in the large bowel, it is preferable to study with a barium enema. The latter remark may sound quite unnecessary, but for some reason clinicians usually request a gastro-intestinal series whenever they wish to check pathology somewhere in the gastro-intestinal tract. In many cases a study and examination of the large bowel will not only suffice but will lead to an early arrival at clinical diagnosis. Lack of thought in choosing the proper x-ray procedure often fills a gastro-intestinal tract with barium which is not evacuated for weeks. Of course, many cases are clinically obscure and therefore it is frequently desirable to use every type of study available to visualize the gastro-intestinal tract.

The following case is a common example of the type which should have been started with a study of the lower bowel. Mr. G., a male of 68, was admitted complaining of constipation, rectal pain and a loss of fifteen pounds in six months. A barium meal series revealed a normal gastro-intestinal tract above the sigmoid, at which point an almost complete obstruction was encountered. The case was necessarily followed for days before the stenosing tract could be visualized and even after three weeks the colon still contained barium. After a few days' observation, a low barium enema was given and a stenotic filling defect seen. Sigmoidoscopy revealed a rather extensive carcinoma at the site of obstruction, (figure 1).

The next case is an example of one in which, even with careful clinical examination, it is impossible even vaguely to localize the lesion, This is the type of case in which close cooperation between the roentgenologist and clinician is essential to arrive at a correct diagnosis. Mrs. T., a female Mexican of 44 years, complains of pain in her arms and legs, general weakness, with some loss of weight. She presents no remarkable physical findings and there was some difficulty in obtaining a history from her. It is because

of such patients who present meager physical findings and indefinite clinical histories that the clinician wishes to insure himself against the presence of a possible malignant

Figure 1. Case 2. Showing defect in sigmoid and marked retention of barium.

lesion. A barium meal series in the case of this patient showed a normal stomach and cap, a normal five-hour distribution and a normal distribution at 24 hours. Because of a very questionable irregular contour in the sigmoid region, a barium enema was given, revealing an extensive filling defect in the upper sigmoid, which offered all the characteristics of carcinoma, (figures 2 and 3).

It is, of course, desirable to recognize these lesions in their earliest stages. As, in this case, the lesion offered no obstruction to the ingested barium, it is perfectly possible to obtain negative findings at the 24-hour examination. Unless sufficient barium is present in or about a diseased portion of colon it is impossible to visualize this region.

It would be ideal, of course, to have complete barium meal and enema studies in all patients, but, while this is carried out in some clinics, it is not generally possible. By giving the roentgenologist your clinical impressions and findings and cooperating with him in regard to rechecking questionable roentgen findings, many possible errors will be avoided. In closely organized clinical groups, it is easy for a roentgenologist to obtain enough personal contacts with clinicians to get satisfactory roentgen studies. Most roentgenologists, however, do a large part

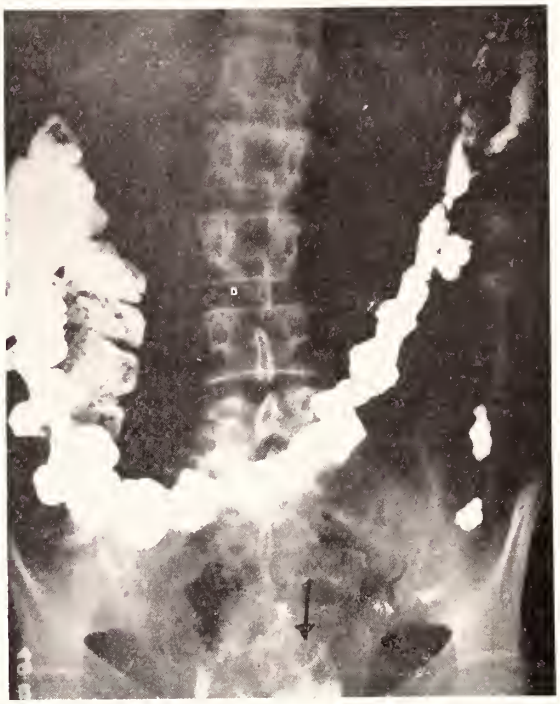

Figure 2. Case 2. Film forty-eight hours after barium, showing very slight irregularities in region of sigmoid.

Figure 3. Case 2. Same colon with barium enema showing extensive defect.

of their work in private offices and it is frequently quite difficult to get in touch with individual physicians. Occasionally the roentgenologist will lead the clinician astray. curate and, even with a careful clinical roentgenological examination, error may occur, as many atypical vagaries present themselves in roentgen diagnosis, as in physical examination.

As an example of misleading roentgen findings, I will cite case number 3, Mrs. B., 58 years of age. Roentgen examination at 5 and 24 hours after a barium meal, showed a small fixed cecum. Its contours were rigid and deformity was fixed. With barium enema the same findings occurred. The evidence seemed to justify a roentgen opinion of an organic lesion, possibly carcinoma. Inasmuch as the patient presented clinical evidence consistent with neoplasm—loss of weight, constipation and weakness—an exploratory operation was done. Except for a few adhesions about the tip of the cecum, surgical findings were normal. The cecum was soft, pliable, and offered no evidence of infiltrating lesion (figure 4).

Figure 4. Case 3. Showing small deformed cecum.

The next case illustrates a different type of diagnostic error. Mrs. S., a female of 51 years, was admitted complaining of weakness, loss of appetite, and a loss of thirty pounds in the past three months. A week before admission the patient had several small bloody stools associted with mild diarrhea. She vomited several times. The barium meal series showed a large filling defect in the ileocecal region and a mass surrounding the narrowed barium stream. A

Figure 5. Case 4. Five hours after barium meal.

Figure 6. Case 4. Twenty-four hours after barium meal. Note characteristic distribution of barium through intussuscepted bowel.

summary of the roentgen findings concluded that the changes presented a typical evidence of new growth. At operation the surgical report was: "Fairly large, freely movable carcinomatous mass involving the cecum and ascending colon. Some retroperitoneal glands were felt. Anastomosis of the terminal ileum to transverse colon was done, isolating the cecum and ascending colon. Mass considered resectable and second stage will be done later." The patient died several days later. At postmortem examination: "A round polypoid mass measuring 6 cm. in diameter was found on opening the cecum. This had the external appearance of normal cecal mucosa and was directly overlying the ileocecal valve. On section of this mass the ileum was seen to open directly into its mid portion and was invaginated. Sections of this region showed small round cells and sparse connective tissue. These cells varied in staining reaction and here and there many mitotic figures can be seen. One place shows intestinal mucosa that is degenerated into the same type as described above." Diagnosis: Intussusception with lymphosarcoma. (Figures 5, 6, 7, 8). The error in diagnosis here was a clear case of misinterpretation on my part, due to ignorance of the occurrence and appearance of chronic intussusception in adults. It was rather inexcusable, as the roentgen picture was perfectly comparable to the more common similar condition in children.

Figure 7. Case 4. After barium enema.

Figure 8. Case 4. After evacuation of barium enema

Case 5. Female, 72 years old. Admission complaints: obesity, constipation, and rheumatism. History was negative for trauma. Cholecystectomy at 52. Nine mnormal pregnancies. During orthodiagraphic study, a

Figure 9. Case 5. Showing dense shadow in lower right chest. Note air-filled loops of bowel at upper level.

shadow was seen in the right lower chest. She was referred by Dr. Sansum to the Roentgen Department for chest study. This showed a moderate left ventricular cardiac enlargement with a dense shadow in the lower half of the right chest. The upper half of this shadow showed an air-containing viscus and, on the chance that this might represent the rather rare right-sided type of diaphragmatic hernia, a barium meal was given. As shown in figure 10, the follow-up examination revealed the entire hepatic flexure and much of the transverse colon was visualized in the right thorax extending up to the level of the second rib anteriorly. No evidence of diaphragmatic septa was found.

Figure 10. Case 5. Twenty-four hours after barium meal.

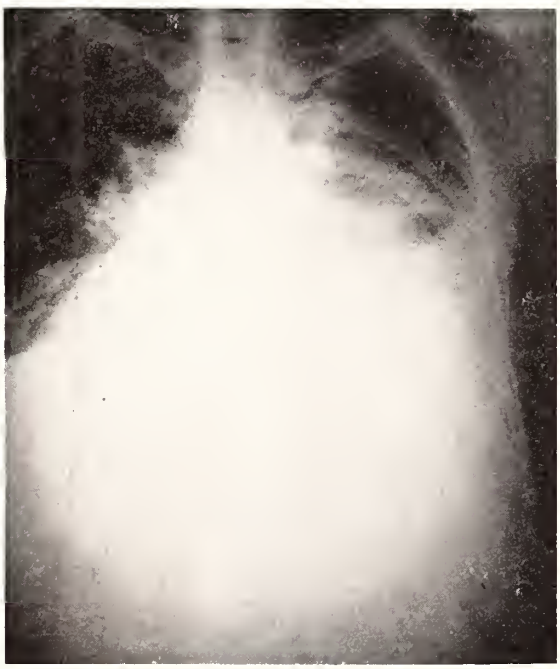

Figure 11. Subphrenic abscess. Note similarity to Case 5.

CONCLUSIONS

The above remarks and cases are presented to show the need for close cooperation between roentgenologist and referring clinician. Several types of possible errors have been considered and it is hoped that their illustration and discussion may prevent others from making similar misinterpretations.

Views on left show cap in prone right oblique. Other views with cap under compression in erect oblique, show posterior wall niche.

Figure 12. Duodenal ulcer with visualized niche.

As we have the good fortune of hearing Dr. Hunt discuss the surgery of gastroduodenal ulcer this afternoon I thought it might be of interest to present briefly an abstract of a roentgen study of these lesions.

This study comprises an evaluation of the so-called compression technic, which has become quite popular in the European school. Although not in general use, the method has been well described, particularly by Chaoul, Akgerlund, Berg, and Albrecht. Briefly, it consists of localized compression over the duodenum or the part of the stomach under examination, under fluoroscopic observation, and the projection of this picture on films. The object is to obtain a detailed study of the our diagnostic accuracy but will be of particular value in demonstrating lesions with such detail that their response to treatment can be followed with accuracy.

It is also applicable to other parts of the gastro-intestinal tract, particularly in the

duodenum or stomach with just sufficient barium to coat the mucosal surfaces. As a result of this procedure, lesions are demonstrated more clearly. The most certain and important sign of ulcer, the niche, can be visualized in as high as 50 per cent of cases which present bulb deformities characteristic of ulcer. Also, certain superficial mucosal ulcerations and the en face type of niche can be shown with great detail and certainty, whereas they might justifiably be missed by even a careful roentgen study which did not involve the use of this technic.

Figure 13. Upper views made in right oblique position. Lower views made with cap under compression.

Compression has always been a part of a careful fluoroscopic examination, obtained either digitally or by mechanical means. In this study a compressor diaphragm designed by Akerlund, and a canvas belt with small rubber bulb designed by Chaoul, were used as compressors.

I believe the method will not only increase visualization of the gastrojejunal stoma and in the colon, where it is desirable to visualize positions of mucosal surfaces which may contain localized organic lesions.

This study will be reported more completely in a later communication.

DISCUSSION

DR. CURTICE ROSSER, Dallas, Texas: I eneveryone here did also. It certainly is very comjoyed Dr. Geyman's paper very much and am sure mendable for a man to report his errors these days, though I realize Dr. Geyman probably had to go away back in his old files to get sufficient examples of this sort to make it interesting.

I have only one suggestion to make and that is that the proctoscopic examination be made before the oral administration of barium, as barium will cake up, get mixed with the stool, and sticks more or less, thus rendering the examination difficult.

DR. VERNE C. HUNT, Los Angeles, Cal.: Dr. Geyman's paper is a very excellent one. His recent observations in this newer method of eliciting the x-ray findings, particularly the niche in duodenal ulcer, is very gratifying, and the method he has presented is a very important step in the aid of diagnosis.

DR. GEYMAN had nothing to add in closing discussion, but thanked Dr. Rosser and Dr. Hunt for their remarks.

THE SURGICAL TREATMENT OF PEPTIC ULCER

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(Read before the meeting of the New Mexico Medical Society, Albuquerque, N. M., May 20-22, 1931.)

Generally speaking, the term peptic ulcer is applied to ulcer occurring in the duodenum, stomach, or jejunum, and strictly speaking it is a misnomer, for in no wise are these ulcers similar. They differ materially in their response to treatment. The surgical procedure of choice for ulcer depends largely on whether the lesion is duodenal, gastric, marginal or jejunal.

The results following surgical treatment of duodenal and gastric ulcers are best when care is exercised in the selection of cases, and when the indications for surgery are most definite. Repeated hemorrhage, perforation, obstruction, or gastric retention resulting from duodenal ulcer, represent more or less urgent indications for surgical treatment. Disability and inefficacy of medical management comprise indications for surgery which cannot be disregarded. Many cases of duodenal ulcer of short duration will respond to medical treatment. Many others, where symptoms are sufficiently mild to produce little if any disability on medical and dietary management, are not surgical. There are definite specific indications for medical treatment. However, to conduct and prolong ineffectual medical treatment in cases possessing definite and unmistakable surgical indications, not only postpones the benefits to be derived from surgical intervention, but often allows the patients to become a poor surgical risk. In general, it may be stated that approximately 50 per cent of duodenal ulcers become surgical.

Surgeons are very prone and properly so, to regard most gastric ulcers as surgical in the absence of contraindications to operation. Un, questionably many gastric ulcers will heal under proper medical management, but the relationship between gastric ulcer and carcinoma of the stomach cannot be denied. Whether or not there is any degree of agreement between surgeons, internists, and pathologists, regarding the incidence of carcinoma developing upon an old gastric ulcer, it must be re-

cognized that the clinical differential diagnosis between benign gastric ulcer and early carcinoma is not always easy and accurate. There are many lesions of the stomach, as determined by clinical and roentgen-ray examination, where only exploration and microscopic section will determine the accurate diagnosis. The therapeutic test of differentiation has at times allowed an operable lesion to become inoperable during the period of observation. I repeat that, even though some gastric ulcers respond to medical management, most gastric ulcers, by virtue of their actual and potential pathology, in the absence of contraindications, are surgical lesions. Likewise, it has not been my good fortune to observe permanent benefit from medical and dietary management of marginal and jejunal ulcers when they occur. Their persistence under medical management has frequently resulted in hemorrhage, perforation, and gastropepunal-colic fistula.

The most satisfactory results incident to the surgical treatment of duodenal ulcer are those following posterior gastro-enterostomy for varying degrees of pyloric obstruction. These excellent results led to the deduction that, if gastro-enterostomy produced satisfactory results when obstruction occurred secondary to duodenal ulcer, the same procedure should produce similar results when used in non-obstructive types of duodenal ulcer. Experience has proved such conclusions not well founded.

Although the technical procedure of gastro-enterostomy has been standardized, its indications have not always been adhered to. The operation of gastro-enterostomy provides excellent results in 88 to 90 per cent of cases when technically and accurately performed in the presence of true indications for surgical treatment of duodenal ulcer. The procedure fails to provide satisfactory results in cases unsuited to such procedure. It fails because it is at times still performed on the suspicion instead of the demonstration of an ulcer. It fails through the persistence of foci of infection or other probable causes of ulcer, or because of individual susceptibility in a small percentage of cases to recurrence of ulcer; through faulty technic, particularly undue trauma, which certainly must be a factor in the causation of marginal or jejunal ulcer; and also fails through early postoperative indiscretions. The unsatisfactory results that occasionally occurred following gastro-enterostomy led to the development of the direct operations, which, for the most part, have a limited field of usefulness.

The direct operation of excision of duodenal ulcer should provide a high percentage of good results, and is a procedure particularly applicable to the bleeding type of duodenal ulcer. Unfortunately, in many cases in which hemorrhage has been a predominating symptom, there is so much inflammatory reaction about the ulcer in the acute and subacute lesions, or so much scarring in many of the chronic lesions, that the indirect operation of gastro-enterostomy becomes the procedure of necessity. Also, the direct operation is not always applicable to the lesions on the posterior wall of the duodenum. The indirect operation of gastro-enterostomy has been successful in controlling the symptom of bleeding in about 50 per cent of the cases of bleeding duodenal ulcers. The direct operation of partial duodenectomy described by Judd has, when applicable, afforded greater assurance against recurrence of bleeding than any other type of surgical procedure.

Experience in recent years has shown that the results of simple excision of duodenal ulcer have not been as satisfactory as those in which some type of pyloroplasty has been done in addition to local excision of the ulcer. The Heineke-Mickuliez, the Horsley, and Finney operations have had to do with the division of the pylorus, with varying results. Horsley recently reported but 45 per cent satisfactory results following his operation, failure having been due in most of the remaining cases to recurring ulcer along the pyloroplasty incision. Judd has not only divided the pyloric sphincter, but has excised the greater part of the sphincter, making a gastroduodenostomy, converting the stomach and duodenum into one continuous tract, thereby producing about the same physiologic changes that occur in cases in which gastro-enterostomy is performed. This operation has been done with a mortality rate of less than one-half of one per cent, and has provided results comparable to the best results following gastro-enterostomy in carefully selected cases. There are, however, certain limitations to the direct operation of excision and partial duodenectomy.

The indirect operation of gastro-enterostomy has given better results when used in cases of old chronic duodenal ulcer, with or without obstruction, than when employed in those cases of relatively short duration, and particularly in young people. It has a higher percentage of applicability than any of the direct operations; and few, if any, of the direct operations, even though applied in carefully selected cases, have been productive of the results derived from gastro-enterostomy. Even though gastrojejunal or jejunal ulcer does occur following gastro-enterostomy, and has been credited with failure to

obtain a satisfactory result following gastro-enterostomy in 3 to 30 per cent of the cases, a low incidence is the rule, and quite probably the true incidence is within 5 per cent. Failure to remove associated disease in the appendix and gallbladder, and the persistence of associated organic disease outside of the stomach and duodenum, are unquestionably responsible in no small measure for incomplete relief following the conservative operations for duodenal and gastric ulcer. The radical operation of partial gastrectomy has little if any place as a primary procedure in the surgical treatment of duodenal ulcer. The direct and indirect operations are performed with a mortality rate approximating 2 per cent. In the last 635 cases of duodenal ulcer operated upon on my surgical service at the Mayo Clinic, there were fifteen deaths, a mortality rate of 2.3 per cent. The average mortality rate of partial gastrectomy is certainly no less than 10 per cent, and recently Hartwell and Felter have reported a mortality rate as high as 36 per cent for this procedure in duodenal ulcer. Primary partial gastrectomy for duodenal ulcer affords little, if any, more assurance against recurrence of ulcer than do the conservative procedures and no one has yet, to my knowledge, reported results following this radical procedure which surpass those obtained through conservative procedures. Partial gastrectomy is at times necessary as a secondary operation for persistence of bleeding after gastro-enterostomy and, in the absence of a marginal ulcer, such partial gastrectomy may be done with excellent prospects of cure and a minimum risk by by preserving the gastro-enterostomy and completing the procedure as a Billroth No. II. The results are so excellent and the risk so small following gastro-enterostomy or the direct operation of excision, with resection of the pyloric sphincter, in the surgical treatment of duodenal ulcer. that the radical operation of partial gastrectomy should be reserved as a secondary procedure, when necessary, for persistent bleeding or recurrence of ulcer.

The problems associated with the surgical treatment of gastric ulcer are considerably more complex than those in duodenal ulcer. The benignancy of duodenal ulcer is practically absolute, and rarely is primary malignancy of the duodenum encountered. Whether or not any relationship exists between gastric ulcer and malignancy developing upon an old gastric ulcer, is a question of great importance and one regarding which there is still considerable controversy. It is quite probable that most gastric carcinomas are malignant lesions from their inception. However, there is much evidence in support of the opinion that gastric ulcer has been the forerunner and has provided the cellular changes which subsequently constitute a true malignant lesion in some cases. The chief problem relates to the differential diagnosis between gastric ulcer and early operable carcinoma, which frequently may be accurately established only through surgical exploration and microscopic section.

To establish the accuracy of diagnosis by such methods necessitates excision of the lesion, which may be accomplished by relatively conservative or radical procedures. For true gastric ulcer, the conservative procedures are usually the ones of choice, reserving the radical procedure of partial gastrectomy for those lesions not suitable for conservative surgery. While the direct operation of excision is highly desirable, the acuteness of the lesion, extensive inflammatory reaction associated with protective perforation or inaccessibility of the ulcer through its high situation in the posterior wall of the stomach, may make only a gastro-enterostomy applicable. In a series of 123 cases of gastric ulcer I performed a simple gastro-enterostomy in 22 per cent of the cases. Balfour has recently reported a mortality rate of 3 per cent and 70 per cent satisfactory results in 100 cases of gastric ulcer in which gastro-enterostomy only had been done.

The incidence of obstruction is high in gastric ulcer situated near the pylorus. However, gastric retention of high degree is frequently noted when the ulcer is situated well away from the pylorus, and in most instances is not due to mechanical obstruction but to disturbance of gastric motility through loss of continuity of gastric musculature. In very few cases of surgical gastric ulcer may a good result be expected following simple excision of the lesion, unless it is for ulcer in the cardiac third of the stomach. Some degree of retention, with delayed emptying of the stomach, may persist after simple excision through continued disturbance of gastric motility, and to obtain the best results from conservative excision, the indirect operation of gastro-enterostomy must supplement it. Cautery excision of the entire lesion has proved a most satisfactory procedure when combined with gastro-enterostomy. It is accomplished with a low mortality rate and followed by excellent results.

Conservative excision of the lesion, with gastro-enterostomy in all but four cases, was the method employed in 77 per cent of the direct operations in my series of gastric ulcer. Some type of resection was used in the remainder, with the exception of four cases in

which there had been acute perforation. Partial gastrectomy, after the method of Polya, was most frequently employed. The Billroth No. II was the final procedure in two cases in which a resection was done as the second stage of a two-stage operation, a posterior gastro-enterostomy having been previously made. There are certain cases in which the two-stage operation is to be recommended, particularly in patients in poor general condition, and in cases in which the one-stage excision of a large perforating lesion would be accompanied by an unjustifiable risk. The Billroth No. I and the sleeve resection have a very limited field of usefulness. The latter procedure is particularly suited to the hour-glass deformity occasionally encountered in gastric ulcer. However, recurrence as an anastomotic ulcer in the suture line, with recurrent hour-glass deformity, is not infrequent. Just recently, I have performed a partial gastrectomy for such a recurrence.

The choice of surgical procedure depends largely upon the size and location of the lesion and upon whether or not perforation has occurred. To disturb the protection afforded by the liver, pancreas, or gastroheptatic omentum in the presence of a large subacute perforating ulcer with much surrounding inflammatory reaction, contributes greatly to the risk of any direct operation. On the other hand, many small or medium-sized ulcers that have gone on to perforation, with subsidence of the subacute inflammatory process, and have assumed the characteristics of a chronic perforated lesion, may be readily excised. Partial gastrectomy may be the procedure best suited to certain gastric ulcers, but the conservative procedure of cautery excision of the lesion and posterior gastroenterostomy is applicable in a high percentage of cases. It assure psparoximately as good a result as a partial gastrectomy and it is accomplished with less risk.

The postoperative development of marginal or gastrojejunal or jejunal ulcer has mitigated considerably in the past in condemning the conservative procedures in the surgical treatment of gastric and duodenal ulcers where gastroenterostomy has been employed as an indirect operation for dundenal ulcer, and when used in conjunction with excision of gastric ulcer. The high incidence of marginal or jejunal ulcer following gastroenterostomy, as reported by the advocates of radical partial gastrectomy, provides insufficient grounds upon which these conservative procedures may be discarded in favor of the more radical and certainly more hazardous procedure of partial gastrectomy for these benign lesions of the stomach and duodenum. While the incidence of marginal and jejunal ulcer has been reported as from 3 to 30 per cent, the true incidence is probably not more than 5 per cent, and, while such lesions are responsible for failure of gastro-enterostomy, the same complication accounts for failure following partial gastrectomy in a definite percentage of cases, which fact cannot be disregarded. When marginal or jejunal ulcer does develop subsequent to gastro-enterostomy, one may retract his steps and restore the continuity of the gastrointestinal tract as a secondary procedure, or resort to partial gastrectomy when necessary. Secondary operations for marginal or jejunal ulcers developing subsequent to partial gastrectomy are of necessity hazardous and radical.

In recent years, there has been a tendency to employ the radical operation of partial gastrectomy for gastrojejunal or marginal ulcer. However, even though partial gastrectomy becomes the procedure of necessity in certain instances, the relatively high incidence of recurrence of ulcer following such radical procedure has served to curb enthusiasm for partial gastrectomy and has instituted a reversion to the more conservative procedures formerly used most satisfactorily. Of these procedures, taking down the gastroenterostomy and excising the marginal ulcer, with restoration of the continuity of the gastro-intestinal tract and some type of pyloroplasty, has been the procedure of choice, and is again being properly returned to that position. Its usefulness is limited to those cases in which the duodenum and pylorus can be mobilized, and to those cases in which, as a result of the original duodenal ulcer, there is not sufficient scarring and contraction to preclude some type of pyloroplasty. Partial duodenectomy and gastroduodenostomy, after the method described by Judd, has proved a most satisfactory type of operation to employ in conjunction with excision of the marginal ulcer and taking down of the gastro-enterostomy when the duodenum can be mobilized. In those coses in which the duodenum and pylorus are not readily accessible, some type of gastric resection usually must be resorted to. When gastrojejunal-colic fistula, fortunately of infrequent occurrence, has complicated a marginal or jejunal ulcer, the general condition of the patient is such that radical operations are not well tolerated, and here again the most simple surgical procedures are necessary to conservation of life.

I should like to leave with you the idea that the treatment of peptic ulcer requires differentiation as to whether the lesion is

duodenal, gastric, marginal or jejunal. Uncomplicated duodenal ulcer often responds to medical management. Failure of response to such treatment, repeated hemorrhage, pyloric obstruction, or perforatioon, represent true indications for the institution of surgical procedures, among which the operation of partial gastrectomy has no place as a primary operation. Most gastric ulcers, by virtue of their actual and potential pathology, in the absence of contraindications to operation, are surgical lesions, and, while partial gastrectomy is at times the most readily applicable procedure, conservative surgical excision and the indirect operation of gastro-enterostomy is readily done in the majority of instances. The indications for surgical treatment of peptic ulcer must always be sufficiently definite to justify the risk and the mortality rate attending any surgical procedure. The consciousness that surgical mortality follows a wilful procedure of the surgeon's own hand must deter him from the performance of radical, dangerous, partial gastrectomy as a primary operation in the surgical treatment of duodenal and most gastric ulcers.

DISCUSSION

DR. F. D. VICKERS, Deming, N. M.: I have enjoyed Dr. Hunt's paper immensely and should like to ask him if duodenal ulcers that recur and then apparently show no symptoms for months have healed up entirely, or if they are still ulcers.

DR. P. RICHARDS, Albuquerque, N. M.: This is rather a comprehensive subject and I do not believe that differential points between a peptic ulcer and a duodenal ulcer should be discussed in the same paper. A peptic ulcer is always invariably an embryonic process, while duodenal ulcers are a mechanical proposition. I have never seen a true peptic ulcer cured, nor have I ever seen a true duodenal ulcer cured. I have seen duodenal ulcers go along quiescently for years if the patient has learned to sleep on his stomach, but they usually recur sooner or later.

DR. NATHANIEL H. BRUSH, Santa Barbara, Cal.: I have become more and more convinced as time goes on that certain tendencies, certain situations play an enormous role in the formation of duodenal ulcers and also gastric ulcers. For the past year I have been working very largely on problems of the psychiatric treatment of colitis and have collected somewhere around fifteen cases, a large majority of them women. Understanding and helping them to understand their problems has done a lot to help to cure these fifteen cases. They had been treated by all sorts of ways—diet, nutrition, restcures and most everything—but it was really giving the individuals a chance to understand their own difficulties, their own situations and how to handle them, that helped most to alleviate their trouble. In my own personal experience in my home, I was very much disturbed over a duodenal ulcer and had all kinds of treatment. During the height of the ulcer it was necessary for me to live under a situation of great strain and very great unpleasantness all around. As soon as this situation was removed, I became better.

DR. HUNT (closing): There are many different opinions about this whole subject. A doctor asked me about the relationship between ulcer and foci of infection, stating he had had an ulcer for years, but as soon as he got his teeth out, all symptoms disappeared. There is a very definite relationship between foci of infection and gastric ulcer. As I stated in my paper, when the diagnosis of duodenal ulcer can be made in the absence of hemorrhage, pyloric obstruction, or perforation, that patient is entitled to a thorough trial of medical treatment and many of them will respond to it. I do not propose to know a whole lot about medical treatment, except to say that various things have been done. Removal of possible foci of infection, alkalis, and other therapeutics may help this class of cases. Dr. Brush's statements, I think, are very excellent. I could not help but be reminded of some of the discussion this morning as to the incidence of high infant mortality in some sections of the country and among some people; as the doctors show, there is a very high incidence among people occupying a very social scale, which is made for them according to their income status, and as that rate increases, their immunity and resistance is increased. One of the men said that some people did not and could not take education when it came to educating the public. Now all these things should be taken into consideration and, when people are in such a position and such a station in life that this medical and non-surgical treatment may be instituted before surgical, many will respond. Then when surgery is contemplated, you should bear in mind the distinct surgical indications which I have attempted to enumerate in my paper. As regards the healing of ulcers, we know that many ulcers heal. Frequently autopsy records will show other conditions as the cause of death, yet old healed ulcers will also be found, with no past history or reference made to such a condition having existed. I wish to express my sincere pleasure at being with you and thank you for the discussion and interest accorded my paper.

RESISTANCE AND IMMUNITY TO ANIMAL INFECTIONS

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(Read before the New Mexico Medical Society at its Forty-Ninth Annual Meeting, at Albuquerque, N. M., May 20-22, 1931.)

Immunity or resistance to animal parasites is a question which has been the subject of much experiment and speculation in recent years. Until recently, most of the work on immunity to disease has been done in connection with bacteria. It has been known centuries that, after a man or animal had recovered from certain diseases, he was thereafter immune to that disease: for ages the Chinese have practised inoculation of their children from mild smallpox cases rather than risk their exposure during destructive epidemics. Pasteur, in the last half of the nineteenth century, put the matter on a more scientific basis, and in the half century since then, there has grown up the science of immunology. It is worth noting, however, that, although we know a great deal about the canges which bacterial infections induce in the nature and behavior of the blood, we are still almost as much at sea

as ever as to how the changes are brought about. A number of ingenious theories have been advanced by Ehrlich, Bordet, Metchnikoff, and others, but none of them have satisfactorily explained all the facts. We know that the presence of foreign proteins or antigens in the body results in the ability of the blood, under certain circumstances, to dissolve them if they are not already in solution; to cause them to clump or agglutinate if in discrete particles, or to precipitate them as solid particles if they are in solution; to fix or use up a constituent of the blood known as complement, necessary for the dissolution of cellular antigens, but occurring whenever an antigen and antibody combine; to stimulate the leukocytes to a heightened appetite for them, and to increase their digestibility for the leukocytes.

We also know that, under certain circumstances, the body is rendered immune to injury by them, while, in other circumstances, it is rendered highly susceptible to them when it was unharmed by them before, a condition known as anaphylaxis. We also know that, when an animal is in a state of hypersusceptibility to a particular protein, injection of that protein into the skin causes a characteristic skin reaction; such as in the tuberculin reaction, and by the injection of pollen extracts into the skin of sensitive individuals. Just how all of this is brought about is still almost as much a mystery now as it ever was and we are almost as much in the dark as to the relation, if any, of these various immune reactions to actual immunity.

Naturally, since animal parasites, as well as bacteria, are made up of proteins, they too can bring about these various reactions whenever their proteins actually get access to the blood. The blood and skin reactions mentioned above are of common occurrence and are, in some instances, of value in diagnosis. Thus, infection with the hydatid cysts of Echinococcus can be diagnosed by complement fixation, by precipitin reaction, or by a skin test, using fluid from a hydatid cyst as an antigen. Similar results are obtained with antigens prepared from achistosomes, trichinas' lung flukes, and so forth, and probably can be obtained with any worms which actually live in the blood or tissues; but worms living in the alimentary canal or bile ducts, such as ascaris, hookworm, give very uncertain and unreliable results. Strongyloides, however, burrowing into the walls of the digestive tract, is said to react well. In some protozoan infections similar reactions occur. Thus, spirochetes and trypanosomes are agglutinated by serum immune to them; in the case of the trypanosomes the process is distinguished by the term agglomeration, since the parasites do not clump together in a haphazard manner but form rosettes, all attached centrally by their posterior ends.

Blood immunized against either spirochetes or trypanosomes shows another peculiarity in that the blood platelets adhere to the parasites until the latter become laden with them. Trypanosomes also acquire the property of attaching themselves to leukocytes, even dead ones, which undoubtedly aids in the process of phagocytosis.

Acquired resistance undoubtedly plays an important part in protozoan and metazoan infections, as well as in bacterial ones. Such resistance, in the case of protozoa, usually takes the form of an antagonism to the parasites, so that they are unable to make headway and produce heavy infections; in the case of worms, it takes three different forms: (1) resistance to invasion of the parasites; (2) resistance to successful maturing of the parasites after entry; and (3) resistance to injurious toxic effects.

It is a matter of common knowledge that protozoan infections after an acute attack usually go into a chronic state in which the parasites may be few and hard to find; such a chronic state is often punctuated by relapses, due to the parasites taking advantage of a temporary weakening in the defenses of the host, as the result of fatigue, malnutrition, or other diseases.

During the chronic periods of infection, there is usually a marked resistance to superimposed infections, although these may occasionally be possible. Fresh chancres do not develop in people with latent syphilis; adults in highly malarial countries, having been infected with malaria almost since birth, cannot develop acute malaria; chronic carriers of the dysentery ameba are not subject to amebic dysentery; and so on. Taliaferro has analyzed some of the factors involved in resistance to trypanosome and malaria infections. Two quite distinct types of resistance appear, one the property of killing and dissolving the parasites, the other the property of inhibiting their reproduction. When a rat is infected with T. Lewisi, the trypanosomes at first multiply, steadily and rapidly. Gradually the rat's blood acquires the property of inhibiting reproduction, which becomes absolute by about the tenth day. About this time the blood develops another property and suddenly destroys a high percentage of the trypanosomes present, but a few, as in the similar case of relapsing fever spirochetes, physiologically alter themselves so that they are unaffected. Since, however, they cannot

reproduce, the numbers never increase to produce a relapse. Eventually, a second trypanocidal substance is produced which wipes out the majority, and usually all, of the parasites left, and the rat is thereafter uninfected and immune. The permanent immunity of rats after one infection has run its course is due to the persistence of the reproduction-inhibiting property of the blood. If a few trypanosomes are inoculated by a flea, no demonstrable infection results because the parasites are unable to multiply. Some animals, notably the guinea pig, do not seem to have this fortunate power to control trypanosomes by stopping their reproduction, but they do produce the trypanocidal substance. When a guinea pig is infected with a pathogenic trypanosome, the latter multiplies until it is very numerous in the blood. Then suddenly the trypanocidal property comes into play and most of them are wiped out. But the few remaining ones, being unchecked in their reproduction, soon produce vast numbers again, thus bringing about a relapse, until a second trypanocidal property, active against the relapse strain, again reduces them. This relapsing process goes on until finally the parasites are either all killed or the guinea pig does not bring its defensive mechanism into play soon enough, and dies with thousands of trypanosomes in its blood. A precisely similar process occurs in infestions with relapsing fever spirochetes.

Mice seem to have no power of their own either to inhibit reproduction or to kill the trypanosomes, so the latter steadily multiply until the mice die. Strangely enough, however, if mice are treated with drugs in sufficient dose to kill most but not all of the trypanosomes, the drug in some way aids the body to develop a trypanocidal antibody so that the animal is immune for some twenty days to the original "passage strain" of trypanosomes. The surviving ones, however, are immunologically altered just as they are after a crisis in guinea pigs, and bring about a relapse. Ritz, in 1914, partially cured a mouse twenty times, with the production of seventeen immunologically different strains. In different mice these do not recur in the same sequence, and an earlier strain might reappear subsequently.

Taliaferro and Johnson have found that a peculiar relation exists between the number of trypanosomes and the trypanocidal effectiveness of an immune serum in different quantities. With small numbers of parasites, any dose above a certain minimum one destroys the trypanosomes; with moderate numbers of parasites, there are zones of effectiveness, so that doses four to ten times the minimum might have no effect, while one six times the minimum is again effective; while, with very large numbers of parasites, the serum is ineffective in any dose.

In malaria infections there is no reproduction-inhibiting mechanism present, yet the parasites are soon largely destroyed by a crisis, and are thereafter few in number. The basis for this destruction seems to lie in phagocytosis by the reticulo-endothelial system.

In metazoan parasites, as noted above, three different types of immunity come into play. In the first place, there is evidence of resistance to invasion by forms which enter through the skin, such as hookworms and strongyloides. This is probably purely physical and is related to race and age, and apparently not to immunity acquired as the result of previous infections. Resistance to the growth to maturity of parasites, however, unquestionably does result from earlier invasions. The experiment of trying to infect three horses with schistosomes has been tried. One animal which had been infected two years before and cured, failed to acquire any worms at all, while two uninfected control animals had 10,000 and 20,000 worms respectively. A similar case has been observed in which skin maggots (cordylobia) are unable to penetrate immunized areas of the skin of a guinea pig. Such types of immunity are not unique; it is known to occur with many kinds of proteins. In the case of intestinal worms which attack the mucous membranes of the intestine, it is conceivable that a similar local immunity might develop.

Sandground (1928) found that dogs infected with strongyloides stercoralis develop a high resistance to superinfections, whether cured or not, and cats even more. This immunity evidently pertained to the intestine for in immune dogs the larvae entered the skin and passed through the blood and lungs to the trachea as readily as in non-immune dogs, yet failed to mature. He found too, that the blood itself did not contain the parasitocidal property. Sandground himself, as the result of a light and brief strongyloides infection, apparently remained immune for at least 14 months, but at the end of 23 months he acquired an accidental infection which was still present a year later. A similar immunity is noted in the case of dogs infected with ascarid worms and hookworms. Sawyer has suggested that the equilibrium reached in hookworm-infested countries, whereby infec-

tions cease to increase with age, may be due to a similar mechanism, and the same explanation might be applicable to the decreasing rate of reinfection after treatment.

It is a well-known fact that one individual may suffer severely from a dozen hookworms, while another can harbor thousands with no evident ill effects. This is a condition which is no doubt true for all worm infections. The immunity consists in the ability to neutralize toxic products absorbed from the worms, and the power to regenerate injured parts.

A slight lowering of hemoglobin results from a moderate infection and is not increased by infections twice as great. Whether hemoglobin plays an important part in immunity to parasitic infections is yet to be found. However, many factors that favor this power are known. Nutrition is of prime importance. And liver extracts have been used with success to counteract the severe anemias of worm infections. The proper functioning of the glands of internal secretion also has been found to play an important part.

With parasitology on the increase due to more and quicker travel between infected areas, there is also the need for immunity against, and prevention of, parasitic infections. The barrier that once confined certain diseases to the tropics no longer exists, therefore parasitology is developing.

DISCUSSION

DR. R. W. MENDELSON, Albuquerque, N. M.: I wish to thank Dr. Allen for his paper and think that we should pay more attention to stool examinations, as they are just as important, if not more so, than a blood examination. Many more accurate diagnoses would be made if more attention was given to the stool examination.

DR. FRANK RIDGE, Kansas City, Mo.: This subject interests me very much. I have a patient on my hands now who came in complaining of hunger pains, with history of considerable gastric colic. Stomach seems to be perfectly normal, but on duodenal drainage bile appeared, which was normal except for some mucus flukes. These were alive and I have not been able to get rid of them. Following the administration of gall-bladder extract, they disappeared for a few days and later returned. We have practically no parasitic infections in Missouri, at least they are very rare.

DR. S. L. BURTON, Albuquerque, N. M.: This seems to me a very important subject. I think we should use more caution in stool examinations, as this would result in much better and more accurate diagnoses and a number of lives might be saved thereby.

DR L. S. PETERS, Albuquerque, N. M.: I am looking for some information. The Professor spoke about how little we know about the mechanism of the duodenum, and I agree with him. I just happened to hear Dr. Rich of Johns Hopkins talk on allergy, in which he claims to have separated allergy from immunity. He claims allergy is not necessary to immunity but the two dovetail into each other, as it were. I should like to hear Professor Allen's opinion on this.

DR. ALLEN (closing): In regard to stool examinations, I do not believe we can overemphasize the importance of these examinations and the finding of eggs and larvae, which may help a great deal in the diagnosis of the condition, which is frequently overlooked in the greater medical practices. As to the scarcity of parasites in Missouri, Dr. Ridge is partially right, I think. Probably they are scarce, but one reason they are scarce is because we have not recognized them. The whole subject of parasitology has not been worked to its fullest extent like some of the other phases of medicine. Regarding immunity and allergy, I still regard them as the same thing and will at least until more work has been done on them. Whether one is necessary to the other or not, I do not know. The medical profession is much too busy with clinical material and clinical work to experiment upon a maximum of immunity. Immunity seems to me to be the widest field along bacterial lines, if you can call immunity bacteriology, and what we are going to learn regarding immunity in the future is going to exceed by far anything we have known in the past.

THE TREATMENT OF DELIRIUM TREMENS

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(Read before the New Mexico Medical Society, at its Forty-Ninth Annual Meeting, at Albuquerque, N. M., May 20-22, 1931.)

Notwithstanding legal prohibition of the manufacture and distribution of alcohol in the United States, physicians of today may often be concerned particularly with two types of alcoholism: the acute alcoholic and the patient with delirium tremens.

The care and management of the acute alcoholic may offer more complexities than it did ten or twelve years ago, the complexities having arisen from some of the peculiar, unusual, and dangerous substitutes for alcohol which may find their way into the human body. It is unnecessary to enumerate these various concoctions, which include such things as cologne, bay rum, various hair tonics, and even shellac, "canned heat," and so forth. Confronted with the ever-present dangers inherent in the imbibing of these dangerous beverages, it is wise for physicians to continue to be familiar with the emergency treatment of methyl alcohol poisoning, or at least see to it that such patients are given the benefit of immediate hospital care where such treatment can be obtained. The handling of the acute alcoholic should not present very much difficulty, provided he has not partaken of some unusual form of stimulant, or has not been poisoned by methyl alcohol.

Some years ago, the usual treatment of the commonly called "Saturday night drunk," consisted in allowing the victim to "sleep it

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off" in the cold, draughty, and often damp cell of the local police station. Here the acute alcoholic often slept off his toxication, only to die a few days later of pneumonia. In some cities, particularly those having a rigorous winter climate, the death rate from pneumonia, directly traceable to poor care and attention, or rather, the lack of attention given acute alcoholics in police stations, rose to such a high mark that intervention by the local health authorities was required.

As a rule, about all the acute alcoholic requires will be a comfortable place in which to sleep, and protection from cold and exposure. But if the degree of alcoholic stupor is very great, if the heart action is weak, and there are other signs of collapse, a gastric lavage, preferably with some alkaline solution, is indicated, and also symptomatic cardiac stimulation. Again let me caution regarding the danger of overlooking a possible methyl alcohol poisoning in such instances, and the necessity of instituting prompt treatment.

Perhaps one of the most serious and alarming of the conditions due to alcohol which the physician may be called upon to treat, is the condition known as delirium tremens, an acute psychosis of alcoholic origin. For the most part, delirium tremens occurs after many years of over-indulgence in alcohol, but it is not infrequently met with in persons who have started their drinking within a comparatively short time, when it is usually the termination of a prolonged alcoholic debauch. In the chronic alcholic, the attack is often initiated by some special episode: the onset of some acute febrile disease (pneumonia, influenza, and so forth,) or by some severe trauma—a fractured leg, head injury, and so forth.

One factor in the production of delirium tremens, as borne out by the history of several patients, seems to be alcoholic over- indulgence in the absence of proper food intake. Thus, one patient consumed at least one quart of rye whiskey a day for nine days, and during that time his food intake amounted to one dill pickle. Another patient drank a large amount of gin during a period of five days, and in that time his food consisted of three scrambled eggs and one banana.

This abstinence from food seems to be one of the important links in the vicious circle which obtains in delirium tremens. The prolonged alcoholic indulgence produces an alcoholic gastritis. The patient then, perhaps, increases his drinking in the hope that the flagging appetite may be restored by the stimulation of the alcohol. But, instead of bringing back the appetite, the increased amount of drinking only serves to cause an exacerbation of the gastritis and an actual repugnance towards food. Thus the ideal conditions for the production of delirium tremens are set up.

Some writers state that occasionally the attack of delirium tremens is preceded by various prodromata stretching back over varying periods of time, from a few days to several weeks, and even longer. Poor sleep, interrupted by night-mares, increasing irritability, uneasiness and vague feelings of anxiety, occur. In addition to these manifestations, there may occur transient sensory falsifications and delusional misinterpretations applied to the simplest and most commonplace things in the patient's daily life and enviroment.

The sensory and tactile hallucinations, while not always constant, are, when they occur, quite a typical part of the picture. Imaginary spiders, worms, and so forth, are picked off the backs of the hands, parts of the clothing, the walls, and bedding. One very interesting feature of these hallucinations is their frequent tendency to appear as diminutions or lilliputian in size: elephants are seen the size of mice; cats, dogs, and rabbits appear the size of the common house fly. The explanation of these peculiar sensations lies in the fact that the finer nerve endings in the skin have acquired a certain degree of alcoholic neuritis, the patient's clouding of consciousness preventing him from recognizing or evaluating such sensory stimuli in their true light, and thus they become falsified and misinterrepted. The well-known fact that the hallucinations and illusions present in delirium tremens are often of such a ghastly and horrifying nature, has given to the lay mind the term "the horrors" to be applied to this disease.

In the main, the treatment of delirium tremens should consist of (1) sedative, (2) elimination, (3) support, (4) nursing.

(1) Sedative: A patient with full-fledged delirium tremens may be wildly and furiously delirious, and the intensity of the tremor may be such as to render it physically impossible for him to remain quiet. In such instances and under such conditions, sedative measures are required to prevent or to ward off complete exhaustion or dangerous collapse.

With a patient on the verge of collapse, one must remember that we are dealing with a heart whose myocardium has been weakened from several sources, such as the poison-

ing from the alcohol, the lack of proper or adequate nourishment, and the added strain of the delirious excitement. Under such circumstances, the use of sedatives such as morphia, chloral, or hyoscine, is absolutely contraindicated.

By far the best means to be used in quieting the patient is hydrotherapy. Such procedures may be difficult to carry out in the home, and therefore the patient should be in a hospital. I do not believe that we possess any more efficient methods of quieting the patient than by the use of the continuous tub bath, given at a temperature of ninety-eight to one hnudred degrees. If a tub, equipped with apparatus to insure a constantly regulated inflow and outflow of water, is lacking, use may be made of an ordinary bath tub, regulating the temperature by means of a bath thermometer. Failing in this, recourse may be had to the warm, wet pack. Hydrotherapy, properly applied, often works with an almost magical effect.

A question may be raised regarding the possible difficulty of keeping an excited patient in the tub. In such instances, it is true, a struggle may take place. If it does, and the patient is not in a too precarious or weakened condition, mild restraining measures may be employed. The patient will soon feel the quieting effects of the warm water and will submit to the tub or wet pack.

The tub or pack should be kept up for a period of two to four hours, provided the physical condition remains satisfactory. Frequently it will be found that, at the end of a two or three hour tub or pack, the patient will be sufficiently quieted to be removed and put to bed.

Even while in the tub or pack, attention should be directed towards insuring for the patient a proper amount of sleep, a matter of the utmost importance. To this end, there are several sedatives to be recommended.

With the introduction of sodium amytal (sodium iso-amyl-ethyl barbiturate) into our pharmacopeia, and its growing usage as a surgical anesthetic, a new sedative has been added to the list of those indicated in the therapy of delirium tremens. The great advantage which sodium amytal offers is that sterile solutions of the drug can be given intravenously. It is quite possible that the patient's mental condition may be such as to render oral medication difficult, if not impossible. The dosage of sodium amytal to be given intravenously is from 20 to 25 milligrams per kilogram of body weight. However, tihs form of medication is not without attendant dangers, and should be employed only in extreme cases, and then in the hands of some one experienced in its use and administration. Personally, I have never used sodium amytal in this manner. Sodium amytal by mouth or by rectum, in doses of six to nine grains, and repeated if necessary in three to four hours, has given very satisfactory results in cases of delirium tremens, and has also been employed in instances of predelirium tremens and mild alcoholic hallucinosis.

If sodium amytal is not available, one can always rely on veronal, given in ten grain doses every four hours up to thirty grains. The object of this medication with veronal or sodium amytal is to obtain what has been called "the critical sleep." This "critical sleep" is akin to the well-know crisis in pneumonia. If it can be obtained, this sleep is, perhaps, the most important step in the whole treatment of delirium. After such a sleep, lasting often for twelve or more hours, the patient will awaken in a much clearer mental condition and greatly benefitted physically.

(2) Eliminative treatment: It is very likely that the amount of alcohol the patient has consumed has caused a dehydration of the body tissues, and also set up an acidosis. To overcomme these conditions, fluids should be forced, not only to aid elimination through the kidneys and intestines, but also to combat the acidosis. The water which the patient rdinks should contain some mild saline cathartic, such as sodium phosphate, fifteen to twenty grains to the pint of water.

If there is evidence of much acidosis, glucose, intravenously, is a safe and rapid method of rendering the body alkaline. Fruit juices, fruit punches, and other alkaline drinks, can also be employed. Generally it will not be difficult to persuade the patient to drink copious amounts of fluids, but it is best to give them in small amounts, and frequently, rather than in large gulps.

On the theory that the profound degree of mental distrubance seen in delirium tremens is possibly due to a toxxic factor produced by the action of the alcohol, or is the result of cerebral edema, lumbar puncture and the withdrawal of large amounts of spinal fluid has been recommended. Acting in the same manner as venesection in eclampsia, acute uremic states, and so forth, the withdrawal of spinal fluid from the subarachnoid space removes such toxic substances as may be present, and also, if there is cerebral edema, relieves pressure.

In the hands of several workers, extremely satisfactory results have been obtained, especially by Goldsmith, working in the Psychopathic Division of the Baltimore City Hospitals. Dr. Goldsmith's excellent paper on the subject of spinal drainage in alcoholic deliria and allied conditions, appeared in the American Journal of Psychiatry for September, 1930. Dr. Goldsmith stresses the points that the duration of the delirium has been lessened, the patient's stay in the hospital has been shortened, and a general improvement noted in large majority of cases. That this procedure may not be as easy to carry out as it sounds, must be evident to any one who has had contact with this type of patient. The possibility of difficulty in keeping a patient quiet enough to permit the puncture to be done, may furnish some objections to this type of therapy. But, after a preliminary quieting has been accomplished by the methods described above, there is no doubt but that spinal drainage produces very favorable results in instances where the delirium tends to be long drawn out.

(3) Supportive treatment: While the various measures, outlined above, are being put into effect, we must not lose sight of the fact that, in many instances, we have on our hands a patient in extreme exhaustion, even bordering on collapse. The preservation of the body heat, particularly after removal from the the continuous tub or wet pack, is very essential. When necessary, the heart should be supported by means of digitalin, strychnine, and so forth. As soon as it is feasible,—and the condition of the patient must govern this—attempts should be made to get him to take food. Remembering the irritated state of the patient's gastric mucosa, the food provided should be bland, but at the same time nourishing and suppoortive. Milk, malted milk, milk containing beaten-up eggs, orange juice, soups, and so forth, comprise a type of nourishment best suited.

(4) Nursing: Although put last, the question of the proper amount and kind of nursing is of much importance. Attempting to handle a case of delirium tremens with rough, clumsy, tactless, and ill-trained or untrained nurses or orderlies, is liable, in the end, to do much harm. The very nature of the disease implies that the patient may be difficult to handle. One must naturally expect resistance, but in many instances, when a struggle does occur, it may frequently be traced to clumsiness, lack of tact, or loss of temper, on the part of orderlies or nurses. The monotonous, unruffled repetition of some simple request, such as, "please get back into bed," seems, in time, to break through the clouded consciousness and to have a soothing effect upon the patient. The mere fact that in the same room there is some one who does not appear hurried, flustered or at all alarmed by the horrible sights seen by the patient, often results in an easing up of the fear effect. Thus one patient, who had made a very satisfactory recovery from a rather acute attack, told me afterwards that he felt it was the presence of a nurse in his room during his worst time, which helped him to a recovery.

I do not wish my hearers to form the opinion that the treatment of delirium tremens consists only of hydrotherapy, the administration of sedatives, the symptomatic supporting and nursing measures. Delirium tremens can be, and often is, a desperate illness which will tax to the utmost the ingenuity and skill of the attending physician. It is necessary to remember that, superimposed upon an attack of delirium tremens, there may be such complications as an acute nephritis, lobar pneumonia, other acute infections, myocardial insufficiency, extreme collapse, not to mention such conditions as a fractured limb, skull, or other bodily injuries which may have played a role in initiating the attack.

But, in spite of all efforts, the attack may have a fatal ending. Statistics gathered both in this country and abroad show a fatal termination in 10 to 15 per cent of the cases.

In conclusion, there are certain points which I desire to re-emphasize.

1. Delirium tremens is an acute psychosis occurring on a basis of chronic alcholism, but it may also result from a prolonged spree. As this condition is a psychosis, treatment in a psychopathic hospital is indicated.

2. The attack may be fulminating and the result of some severe injury or acute infection occurring in a chronic alcoholic.

3. Hydrotherapy, properly utilized, probably offers us the safest and most efficient means of quieting the patient.

4. The use of such drugs as morphia, chloral, and hyoscine, is contraindicated in delirium tremens.

5. Even during the acute stages of the disease, eliminative, supportive, and nursing, treatment must not be neglected.

DISCUSSION

DR. M. K. WYLDER, Albuquerque, N. M.: Dr. Brush's paper has been very enjoyable to me and recalls an incident which occurred many years ago when I was a patient in the hospital. Nearby was a fellow suffering from delirium tremens and his condition was such that he could not stand the slightest noise. I remember one night in particular, a cat was sneaking across the floor, when we were all awakened by the patient screaming out,

"What do you mean walking around here stamping your feet like a horse?" The abnormal sensibilities of this type of patient are difficult to realize.

DR. R. O. BROWN, Santa Fe, N. M.: I should like to ask Dr. Brush if paraldehyde has proven of any benefit in cases of delirium tremens.

DR. O. I. NESBIT, Espanola, N. M.: When I was an intern in the hospital, whenever a case of this type was brought in, we did a spinal puncture and those upon whom it was done seemed to improve much faster than others who were not so treated.

DR. BRUSH (closing): In regard to Dr. Wylder's story about the cat, I should like to ask him if it was really a cat. The patient might have misinterpreted the cat as being something else than a cat. I have used paraldehyde a great deal and consider it a very safe and very efficient sedative. I have never made spinal puncture in these cases.

ELECTROCAUTERY IN TUBERCULOSIS OF THE LARYNX

W. E. VANDEVERE, M. D.
El Paso, Texas

(Read before the Seventeenth Annual Meeting of The Medical and Surgical Association of the Southwest, held at Phoenix, Ariz., Dec. 3-5, 1931.)

Tuberculosis in any form is of vital importance to all of us who practise medicine in the Southwest. The climatic advantages of this section can never be ignored, and the example has been set by many physicians, who have come here because of their own health or that of some member of their families.

ETIOLOGY

Laryngeal tuberculosis is to be found in a rather large percentage of cases of pulmonary tuberculosis and in most cases is secondary to that condition. Statistics show that laryngeal involvement varies from 12 to 45 per cent, depending on whether the pulmonary condition is an early or advanced one. The infection is thought to take place most often through the lymphatics, or from infected sputum passing over an abraded surface of the mucous membrane.

SYMPTOMS

A patient with pulmonary tuberculosis who experiences change in the quality of the voice coming on gradually after cough or excessive use, or whose voice tends to tire easily, often exhibits early symptoms of laryngeal involvement. Pain depends much on the location of the lesion. The vocal cords and other structures within the larynx may be seriously involved, with little pain; while a slight lesion of the epiglottis or aryepiglottic folds might produce much discomfort. Acid foods and liquids cause the pain.

PATHOLOGY

The earliest lesion to be seen is a slight thickening of the mucous membrane, which becomes more prominent on phonation. The early lesion is more often seen in the posterior commissure or interarytenoid space, and next most often on the vocal cords. Regardless of location, the first evidence noted is an infiltration, then an edematous swelling in loose tissue, and later an ulceration. Stephens[1] defines tuberculosis lesions in the larynx as consisting of infiltrations, ulcerations, perichondritis and tuberculomas. Tuberculosis in the larynx, as elsewhere, begins in the formation of a tubercle. The mucous membrane over the tubercle becomes destroyed and an ulcer results.

According to most authorities, when the tubercle bacillus comes to rest in a tissue, the fixed connective tissue elements are stimulated, causing a production of epithelioid cells. These cells clustered around a central area are elongated in shape and form the most constant feature of a tubercle. This cluster of cells is surrounded by an inflammatory zone of mononuclear cells, lymphoid in type. In the center of this mass is often found a giant cell, consisting of a large mass of protoplasm containing many nuclei. Such a tubercle is without blood supply and the center undergoes necrosis, due as much to the lack of blood supply as to the toxins of the tubercle bacilli. Healing of such an area may take place by the deposit of calcium salts in the necrotic area and the formation of a dense surrounding capsule, or by a stimulation of the fixed connective tissue cells and a changing of the epithelioid cells into fibroblasts, whereby fibrous tissue is formed in sufficient amounts to encapsulate the lesion. Ulceration and infiltration are superficial until secondary infection takes place.

DIAGNOSIS

In a lesion of the larynx, the three conditions most often confused are tuberculosis, syphilis, and cancer. It is possible for any two or all three conditions to be present at the same time. However, in the great majority of cases, a laryngeal lesion is tuberculous if there is tuberculosis in the lungs. A syphilitic ulcer is sharply defined with clean-cut edges, and the Wassermann and therapeutic tests are of decided value. It is not always easy to distinguish a malignancy from a tuberculous lesion, because it is not uncommon to have a cancer in a patient suffering from tuberculosis. A cancer is more prone to attack the middle or anterior third of the vocal cords, while tuberculosis primarily attacks the posterior commissure and adjacent parts. Biopsy would be positive but is dangerous in tuberculosis and also in cancer, unless one is prepared to do the necessary surgery at once.

PROGNOSIS

It has been stated that tuberculosis of the throat diminishes a patient's chances of recovery by nearly 50 per cent. Forty years ago, Morrell McKenzie stated: "It is not cer-

tain that any case of tuberculosis of the larynx has ever recovered."

Tuberculosis of the larynx, as a rule, progresses much in keeping with the condition of the lungs, although there is many a patient whose larynx has steadily improved while his lungs were growing worse. This is frequently true under present-day treatment. However, a laryngeal involvement is always serious and especially if extrinsic and involving the epiglottis and aryepiglottic folds.

Modern treatment has greatly improved the outlook in laryngeal tuberculosis.

TREATMENT

An early diagnosis goes far in the successful treatment of laryngeal tuberculosis. The laryngeal mirror should be used whenever an examination of the chest is suspicious or positive for pulmonary tuberculosis, and the throat should be examined once each month thereafter as long as the pulmonary lesion is active and advancing.

A large percentage of very early cases will clear up merely by rest of voice together with proper general care. In these early cases the patient should be put on whisper, and if definite improvement does not follow in two or three weeks, then the doctor should insist upon silence and the use of pencil and pad. These cases many times are greatly benefited by exposure of the larynx to sunlight by means of the metal Verba mirrors. If, in spite of these methods of treatment, the infiltration increases or an ulcer develops, or if an ulcer is present at the first examination, there is no therapeutic agent known to science at this time which approaches in effectiveness the electric cautery. Most of the country's leading laryngologists highly favor this method of treatment. All value rest of the larynx above everything else, but, when this is not effective, we have a remarkable agent in the electrict cautery.

Fetteroff[1] mentions the experimental work done by himself and George B. Wood in 1910 and 1911. Guinea pigs were inoculated with the tubercle bacilli and the resultant lesions cauterized with the electric cautery. It was found that an inflammatory zone developed around the area destroyed—newly formed blood vessels and fibroblasts. In six days the reaction was more marked, blood vessels were more numerous and there were larger deposits of fibrous tissue between the epithelioid cells and the tuberculous mass. In twenty days the lesions were almost healed. They concluded that any thing which aids the cicatrization of a tuberculous nodule by the formation of fibrous tissue is of definite value in the cure of the disease.

Pryor[2] regards rest of the voice as the most valuable procedure in the treatment of laryngeal tuberculosis, regardless of what other type of treatment is used. He also mentions the sunlight treatment by use of the Verba mirrors manufactured in Colorado Springs. There are some cases which this type of treatment does not help, and it is in such cases he relies on the electric cautery. He states that with this agent most spectacular results are noted in the relief of pain.

Kellam[3] states that the specific results following the skillful and judicious use of the electric cautery in the treatment of laryngeal tuberculosis, bear a similar relation to this complication as insulin to diabetes and arsphenamine to syphilis. He concludes that the electric cautery has largely superseded curets, heliotherapy, and acid applications, in the treatment of tuberculous ulcers, infiltrations and granulations, and that the pessimism which heretofore has doomed every case of ulcerative laryngeal tuberculosis to death is not justified.

Terry[4] follows one of two lines of treatment when a diagnosis of laryngeal tuberculosis is made—rest of voice, or electric cauterization. Disturbing the patient for frequent examinations or various local applications is as much contra-indicated as the too frequent removal of surgical dressings from a healing wound. The electric cautery is the best method of treating the tuberculous lesion which fails to yield to voice rest. With early lesions, complete healing is the rule after a few cauterizations. With most of the advanced cases it is the most efficient method for the relief of the excruciating pain and enables the patient to take much needed food. Many times healing will take place following cauterization of extensive lesions.

William C. Warren, Jr.,[5] thinks all laryngeal tuberculars should be in a sanatorium so as to carry out properly silence treatment, and if this does not cause improvement then the electric cautery should be used.

Looper and Schneider[6] state that, for the active treatment of the tuberculous larynx, they have found the use of the electric cautery most beneficial and employ it in preference to all other methods. Early cases clear up after two or three treatments and advanced cases show marked improvement after a few cauterizations. In severe and hopeless cases, the cautery is of great value for relief of pain and coughing. Many local applications have been tried and abandoned. In the treatment of 500 cases of laryngeal tuberculosis, the electric cautery was found to be the best treatment and, of all cases, 65.5 per cent were improved and healed, and 26 per cent were improved and healed in far advanced cases.

Stephens[7] states: "Of all methods of local treatment none is so productive of benefit as the electric cautery.

Glenn and McGinnis[8] speak of the good results obtained by many men in treating tuberculosis of the larynx with electric cautery, but prefer the use of the water-cooled mercury quartz light by means of specially made laryngeal mirrors, because this method requires less expert manipulation of instruments.

Spencer[9] states that electric cauterization offers a valuable means of destroying both ulcers and tubercles and it is doubtful if any method of treatment has yielded better results than the cautery.

Sharp[10] recommends vocal rest for all patients who have definite signs of tuberculosis in the larynx, and the electric cautery where there is a tuberculoma, infiltration, ulceration or edema. The quartz light has not been of value to him.

Muskat[11] considers, in the combat of laryngeal tuberculosis, rest of the voice most important, and the electric cautery when this has failed.

Briggs[12] says that the electric cautery is proving by far the greatest means of combating the lesions of laryngeal tuberculosis and especially when other treatments are not promising.

Green[13] has done much work in treating laryngeal tuberculosis with the electric cautery and is getting excellent results.

Looper[14] states that with the electric cautery we can accomplish in one application what could be gained by weeks of silence, and, as soon as a tuberculous lesion of the larynx is recognized, cauterization should be applied if the patient's general condition will permit it.

Brown[15] considers the electric cautery the best therapeutic agent we possess in tuberculous ulceration of the larynx.

Sir St. Clair Thompson[16] speaks of the older writers' considering the recovery from laryngeal tuberculosis as improbable as we now consider recovery from tuberculosis of the meninges. Early cases are given two or three months of silence before resorting to the cautery. When healing is stationary or slow, or where the patient is not able to wait the necessary time, the cautery is used. Of 477 cases of laryngeal tuberculosis, twenty-three recovered with silence, fifty on whisper and forty-six with the use of the electric cautery.

Wood[17] states that the electric cautery is undoubtedly the best surgical method of treating laryngeal tuberculosis, and the results attending its proper use have taken this disease out of the list of laryngological nightmares. The object of cauterization is the production of a scar rather than the destruction of all tuberculous tissue, and this fact makes the procedure a comparatively minor affair. With the possible exception of very large tuberculomata and completely diseased epiglottis, all the clinical types of localized tuberculous lesions are more successfully combated by the cautery than by any other form of treatment.

In my personal experience during the past three years, I have seen close to a hundred cases of laryngeal tuberculosis, and of this number have used the cautery in about 50 per cent of the cases. In the early cases, rest of the voice will often effect a cure where there is a tendency for improvement of the pulmonary lesion. Many of these cases have received definite benefit by use of the Verba laryngeal mirror, which enables the patient to reflect the sun's rays into his larynx. Often very painful throats experience a sensation of warmth and comfort after the use of heliotherapy. It has been my practice to subject patients to rest and heliotherapy unless there is ulceration present on first examinatoin or one develpos in the course of more conservative treatment. I then use the electric cautery. However, I am coming to believe that many cases of infiltration would more quickly heal if the sharp-pointed cautery were used early and plunged into the more prominent areas of infiltration. In ulcerations I have little faith in applications, rest of voice, or any other treatment except the electric cautery. I grant that a few such cases get well by the treatment of "watchful waiting" but the healing process is greatly hastened by use of the cautery in the early and moderately advanced cases, and the relief from pain in the far-advanced cases is more pronounced than by any other method at our disposal. All of us see cases who seem doomed from the start—patients who have little resistance and whose pulmonary and laryngeal lesions advance in spite of all that can be done. These are the cases we can often give the most wonderful relief by use of the cautery. However, in the very sick patients, we must be careful not to overtax them with too many applications. These patients are often given great relief by the application of the cautery to one or two painful areas.

TECHNIC

Except in the very nervous and apprehensive patient, no preliminary medication is used. At times we have given 1/8 or 1/6 gr. morphine by hypo, three quarters of an hour before using the cautery.

The very sick patients are allowed to remain in bed, as the illumination and necessary instruments are easily arranged by the bedside. The indirect method is far preferable to the direct and just as easy after a little practice. A 10 per cent solution of cocaine is applied lightly to the pharynx and soft palate, and with a curved applicator 10 per cent cocaine is then applied to the epiglottis. In a few minutes the arytenoid and posterior commissure are touched and, if the vocal cords are involved, they are also cocainized. As a rule, anesthesia is sufficient after 10 minutes; if not, more cocaine is applied. For the deeper ulcers and infiltrations, a sharp-pointed cautery tip is used, and for the broad ulcers, a rather flat cautery. In this first case the cautery is plunged rather deep into the infected tissue; while in the second, the ulcer is seared rather superficially. The point should be heated almost white hot so the tissues do not stick to it. It is the reaction to the burn, and not the destruction of all the tuberculous tissue, we seek, and for that reason we should be gentle in our manipulations, and make it a point to do too little rather than too much. From one to five cautery applications are, as a rule, all the cauterization we should do at one sitting. The procedure may be repeated in two to four weeks. One should avoid cauterizing deeply in the region of the cartilagenous joints, especially the crico-arytenoid, for fear of producing an ankylosis.

As a rule, pain and discomfort are markedly relieved after use of the cautery. At times, there is some pain for a day or two, requiring sedatives, but this is seldom the case if we do not attempt to do too much at one sitting.

Since using the cautery, there are few cases I feel are hopeless until I have tried this method, and these hopeless cases are generally much relieved, both physically and mentally, by its use. I have seen a few far-advanced cases get entirely well by use of the cautery. I have in mind three cases who had ulcerations over practically all parts of the larynx, each of whom lost most of the epiglottis and parts of the vocal cords. These cases finally made complete clinical recoveries by repeated electric cauterizations.

I feel that the electric cautery is far superior to any other method of active treatment we now possess for laryngeal tuberculosis, and the more its good effects are known, the more this valuable therapeutic agent will be used.

SUMMARY

1. Laryngeal tuberculosis is a complication of pulmonary tuberculosis in from 12 to 45 per cent of cases, depending on the severity of the pulmonary lesion.

2. The tuberculous lesion is healed by the deposit of calcium salts in the necrotic areas and by an increase of fibrous tissue which develops from the fixed connective tissue cells, and probably by a changing of the epithelioid cells into fibroblasts. Such healing processes are encouraged by an increased blood supply.

3. Rest is important in all cases of laryngeal tuberculosis. The electric cautery is used in all tuberculous ulcers, and infiltrations which do not respond to rest of the larynx. Heliotherapy is used in many cases.

4. The electric cautery heals, not by the destruction of all tuberculous tissue, but by the development of an inflammatory zone in which newly formed blood vessels and fibroblasts are produced, which hastens healing by cicatrization.

5. Most early cases heal with the cautery, while the advanced cases are relieved of pain.

6. Electric cauterization is a minor procedure, done best under cocaine anesthesia and by the indirect method.

REFERENCES

1. Fetterolf, Geo. Laryngoscope, Jan., 1924.
2. Pryor, Will R. Kentucky M. J., Oct., 1930.
3. Kellam, John W. U. S. Vet. Bureau Med. Bulletin 6: 659-660, August, 1930.
4. Terry, Geo. H. B. South. M. J., Feb., 1929. Pp. 147-149.
5. Warren, Wm. C., Jr. South. M. J. Dec. 27. 916-918.
6. Looper, Edward A.; and Schneider, Leo V. State San. Maryland, June 13, 1928.
7. Stephens, L. B. Texas State J. Med., April, 1930, 806-811.
8. Glenn, E. E.; and McGinnis, B. J., Jan., 1930, J. Missouri M. A., pp. 7-10.
9. Spencer, F. R. Colorado Med. J., Jan., 1931; pp. 29-32.
10. Sharp, B. S. Rhode Island M. J., Jan., 1929; pp. 5-6.
11. Muskat, Irving J. Illinois M. J., May, 1930; pp. 355-359.
12. Briggs, H. H. South M. J., May, 1928; pp. 338-341.
13. Greene, J. B. South. M. J., May, 1928; p. 343.
14. Looper, E. A. South. M. J., May, 1928.
15. Brown, Morrow D. Ann. Otol. Rhin. & Laryng., 1924.
16. Thomson, St. Clair: Tuberculosis of the Larynx, 1924.
17. Wood, Geo. B. The Nose, Throat and Ear and their Diseases, by Jackson and Coates, 1929.

THE USE OF INSULIN IN THE TREATMENT OF ANOREXIA AND MALNUTRITION

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To quote Bodma: "Falta and Voigt, before the discovery of insulin, enunciated the hypothesis of a pancreatogenic obesity dut to the hyperfunction of the islands of Langerhaus." Since that time, enough work has been done with insulin in alimentary dysfunction to teach us that we are yet only pioneering, and that this agent that assists carbohydrate metabolism is worthy of much more study than we have given it to date.

It is true, we may have malnutrition without anorexia, but usually this is not the case. The person that has the appetite to eat, in most cases will have a well-nourished body. There may be some glandular condition existing, such as hyperthyroidism or hyperactive suprarenals which might produce loss of weight. Other causes of loss of weight are insufficient food, poor assimilation, increase in organic metabolism.

Mezthalen and Cario conclude that insulin and epinephrine are antagonistic in their action. It is known that an injection of the marrow of the suprarenal is followed by hyperglycemia, glucosuria and a diminution in the amount of glycogen. Metz also points out this antagonism; stating that insulin and epinephrine maintain a balance in the carbohydrate metabolism, in that the insulin aids the entrance of sugar with the cells and epinephrine retards it. Cori feels that epinephrine promotes the decomposition of body glycogen, insulin increases liver glycogen, which makes it necessary for storage. Cannon calls epinephrine glycogenolytic and insulin glycogenetic, thus affording a natural corrective response when there is an abnormality existing. It is almost impossible to carry an individual beyond the normal weight with insulin. Insulin increases the permeability of cells for sugar. It is thought that insulin causes water retention in the cells. It changes carbohydrates into fats, and tends to increase the glycogen content of the musculature.

It comes, then, to a question of producing the appetite that is necessary for the particular individual's needs. Insulin is the best agent that we have found to produce that desire for food. There is a variance of opinion as to what causes this increase of appetite with insulin in cases where exhaustive use of other inducements have failed. It is a well-known fact that it does occur, but many men do not attempt to explain it, and others only theorize.

Quigley and Johnson, in a more detailed study on humans after various fasting times and with rubber balloons placed in the stomach—along with the council of Carlson and Templeton, arrive at something more definite. With these balloons the gastric motility was recorded, after insulin injection to fasting men, by a water manometer and fluoroscope. Briefly I may, to advantage, state their findings and conclusions. The sensation of hungar pangs was related chiefly to activity in the fundic portion of the stomach. Also, the activity of the stomach was as great during digestion and vomiting as that occurring in empty stomachs, but there was no hunger pang, though the activity of the fundic region is much greater during hunger pang than during digestion. The hunger pangs might be associated with activity in any part of the stomach, though, if the sensation originates in the cardiac end, there is none in the fundic. When sensation is related to pyloric activity, conscious sensation may be the result of summation of stimuli.

The subcutaneous injection of 12 to 20 units of insulin increases gastric motility in an empty stomach. Smaller doses than this do not. The first activity appears in the pyloric portion, such activity continuing from three to five hours, with marked hunger pains. This motility is not altered by extraneous stimuli such as nausea, unpleasant emotions, smoking, sight of food, nor by the introduction of glucose into the stomach, but is inhibited by its introduction into the duodenum. Adrenalin subcutaneously will cause a partial inhibition by its action on the gastric splanchnic nerves and by increased blood sugar. Atropine in rather large doses will also inhibit gastric motility, probably by paralysis of vagus nerve endings. Gastric motility induced by insulin is augmented by sleep. As the muscular tone is gradually increased, the sensation of hunger appears, along with other symptoms of hypoglycemia, such as weakness, restlessness, sweating, dyspnea, and so forth. In fact, these indications of prostration and hyperexcitability may be so marked as to crowd out the sensation of hunger. The administration of atropine will likewise do away with the sensation of hunger, and so, to a lesser degree, will adrenalin. The patient then feels much better until the drug effect is gone, which is about twenty minutes, only to have such symptoms rapidly grow worse, and the patient is in a dangerous condition unless glucose is given immediately.

We have, then, the hunger sensation following injections of insulin, directly proportional to the degree of gastric motility. It rests to decide whether this increased motility is produced by direct action on the gastric mechanism, or indirectly by producing a hypoglycemia, which then stimulates this mechanism by reducing the metabolism of carbohydrates.

In this connection, we have run two series of cases on patients with tuberculosis, one of twenty cases during May and June, another of fifteen during September and October, each of six weeks' duration. They were all institution cases on bed rest, and include incipient, moderately advanced, and far advanced cases. Also six cases non-tuberculous, in which little or no pathology could be found, except loss of appetite and malnutrition. These non-tuberculous cases were all ambulatory, two were working. Time and space will not allow a detailed case report in each case. However it will be interesting to note that all of the non-tuberculous cases had tried various methods in an effort to gain weight—bed rest, forced feeding, milk diets, and so forth—but with failure. Not one of these cases failed to gain from the lowest of four pounds to the highest of sixteen pounds in six weeks, with an average of eight pounds, in five cases. One case stopped after a gain of four pounds in one week, another had an intermission of three weeks, but continued to gain after the second three weeks until sixteen pounds were gained. There were no untoward developments in any case. Their reports were very similar, that is, they developed appetite and enjoyed food. They invariably felt much better, with more energy; they felt like doing their work, could sleep better. The skin took on a more moist and healthy appearance, with some color in cheeks. Indeed, they are happy over the results until the subject of administration is brought up. Here it is not all happiness. To call at a doctor's office three times a day or to have the doctor call, the expense is prohibitive. It is necessary, then, to teach the patients to make their own injections. For this reason we advised such cases to take it only twice daily, before their best two meals. In fact, the results obtained with two injections were about as good as with three. This can be explained by the fact that the effects of a dose of, say, 20 units will last about six hours; therefore, it will overlap the following meal. There was no evidence of water retention to the point of edema. Though I dare say the fast rate of gain during the first week is probably due to reestablishment of a normal water retention and not altogether to storage of fat. There was better bowel elimination and normal urine output. In only two cases can we report as to how well this gain of weight is retained. The others are of too recent date. One has held sixteen pounds gained in nine weeks beginning about May first. Another, twelve pounds for two months.

In tuberculosis, we have an entirely different situation. There is a known, definite cause for the loss of appetite or undernutrition, which is frequently overwhelming. The patients are broken in health and in morale, as well as financially. And nothing seems to turn the tide so completely as to have a sudden return of the appetite. They regain their optimism, their hope is restored. They are ready to try again. Nor was this accomplished in all of our thirty-two cases. Neither was there a gain of weight in all cases where the appetite was improved. However, the most marked improvement in any case was in one who did not gain at all, though the appetite was some better. This was a case that had been practically moribund for over a year, with far-advanced tuberculosis in both lungs, running daily fever of 100° to 102°, with profuse cough and expectoration. She had gotten to the point where the starvation acidosis was producing vomiting, which was controlled by intravenous glucose. Now she is eating three fairly representative meals and able to be up and about the sanatorium, her fever ranging from 99° to 100°. Twenty-three of the thirty-two cases run, showed satisfactory gain in weight ranging from two to twelve pounds, with an average of six pounds. There was little to no change in ten cases, which can be explained in most cases by interrupting complications, and were all discontinued after a week to ten days. Of those that gained, they all stated that they felt better, had a good to ravenous appetite. In several, their constipation was relieved to a great extent. They slept better. There was a feeling of optimism. They were willing and faiting for their shots each time. We noted no excessive water retention, nor was there any focal infection set up. A diuresis was noted in five cases after the first week. Two cases were nauseated within twenty minutes and could not eat at all; so it was discontinued.

The technic of administration is simple for the individual case, but is complicated when running a large series, due to the fact that many cases differ in the amount they can take and also in the time best suited for the case. It should be given long enough before the meal so that hunger pains will begin to appear. This time will vary from

twenty minutes to one hour or more. Ordinarily a group of cases can be started with five units thirty minutes before one meal a day, increasing a meal a day for three, then increasing five units each day until fifteen to twenty-five units are given three times daily. That will vary according to the size of the individuals and the amount of food they are induced to take. One unit of insulin will take care of about 1½ to 2 gm. of sugar.

There was no particular change made in the diet. It is a mistake to have an excess of either carbohydrates or fat, for it is not only a storing of fats that we want, but, rather, growth of the bones, muscles, glands, and everything else. Consequently, the protein and salt contents of the diet must be kept up to the normal proportions. It is true, the hypoglycemic reactions must be controlled. They will usually appear about three and a half to four hours after meals. This can be easily accomplished by giving a glass of orange or lemon juice sweetened with a tablespoonful of sugar or a couple of pieces of candy, and the patients soon learn this and are prepared. Fear of the reaction should never be a complication if a careful study is made of each case. Nothing should be given between meals that will not be out of the stomach by the time the next dose is due. Again, there is a great tendency in the beginning for the patients, in their zeal, to eat too much. Such injudicious eating may result in a severe attack of indigestion lasting for days, with loss of weight, your insulin getting credit for failure. No results will be obtained in asthmatics where adrenalin is given repeatedly.

In summarizing, let me state here that the value of our study at the St. Joseph's Sanatorium in El Paso, as revealed in this paper, only poorly represents what we hope to learn from a more detailed application of insulin in the apparently healthy undernourished individuals, as well as in the various diseases. Though our observations have been chiefly with tuberculosis, most of the literature deals with its use in other conditions. Insulin can be used in almost any condition of undernourishment. It is of particular advantage in cases that present no definite pathology, the constitutional asthenias, those with unstable nervous equilibrium, in visceroptosis. It is useful in any case needing forced alimentation. It is of advantage in tuberculosis, arteriosclerosis, senile emaciation, Basedow's disease, convalescence after many infectious fevers where the appetite is slow in returning. Lobe states that it is the best method of treating nurslings who are underweight. Nobecourt and Levy found it gave relief in athreptic children suffering with digestive disorders which prevent assimilation. Moutier got good results in a series of cases of dyspeptic women following pregnancy. In fact, the list of conditions in which insulin may be used to advantage is almost endless. Indeed, it is our opinion that insulin given judiciously will prove to be an adjunct with startling results in any condition where there is faulty carbohydrate metabolism.

There are a few contra-indications mentioned by some authorities, though I question the validity of such reasoning. For instance, Haemmerli advises against it in myocardial conditions or in valvular lesions, fearing that it might cause the heart muscle to yield glycogen too rapidly. Some fear that insulin may set up focal infections in tuberculosis, due to the protein substance left in it. A letter from the Lilly Laboratories states: "There is nitrogenous substance associated with insulin which is of the protoese type, but the protein-like material in Iletin is exceedingly small compared with the content of protein substance in the ordinary stock vaccines."

Pulmonary hemorrhage may present a contra-indication. Where the gastric spasm is severe enough to cause nausea, it is hard to use, but may be used if given to an individual with a full stomach. We found a few cases who seemed to have a peculiar intolerance for insulin, though a little more careful study might have solved that problem.

We arrive, then, at a few conclusions:

1. Insulin is a valuable adjunct in the treatment of anorexia and malnutrition.
2. It is our opinion that it may be used in almost any condition of undernutrition.
3. Insulin should be given only under careful supervision of a physician.
4. It is valuable in the treatment of tuberculosis.
5. The appetite is proportional to the degree of gastric motility set up.
6. As yet, our knowledge of its advantages in the treatment of diseases is very meager in comparison with what we hope to learn.

BIBLIOGRAPHY

1. Quigley, Johnson, and Solomon. Action of Insulin on the Motility of the Gastro-intestinal Tract. Am. J. Physiol. 90:89. Sept. 1, 1929.
2. Metz. Insulin in Malnutrition: Preliminary Report. J. A. M. A. V., 96:18. May 2, 1931.
3. No. 77465. Bauer, R.; and Myiri, W.: Forced Alimentation with Insulin in Non-Diabetics, Med. Klinik, Berlin, 21: 1454-1458; September, 1925.
4. No. 107991. Targowla, R.; and Lamanche, A.: Insulin Treatment of Conditions of Anorexia, Sitophobia and Denutrition in Psychoneuropathic Disorders, Prat. med. franc., 5: 452-456. November, 1926.
5. No. 108046. Labbe, H.; and Theodoresco, B.:

Insulin and increase in weight. Medicine, Par., 7: 740-745. July, 1926.

6. No. 108294. Bonorino Udaondo, C.; and Fontana, A.: Insulin in cases of denutrition. Prensa med. Argent.: Buenos Aires, 13: 221-225. August 10, 1926.

7. No. 77212. Peutz, J. L. A.: Insulin as an Adjuvant in so-called "Mast' (Fattening) cures and in states of fatigue. Nederlandsch Tijdschrift voor Geneeskunde, 70: 1986-88, 1926.

8. No. 108335. Hofhauser, S.; and Schon, E.: Insulin in Nondiabetic Patients Suffering with Tuberculosis, Beitr. Z. Klin. d. Tuberk., 63: 827-830, 1926.

9. No. 108336. Unverricht: Forced Feeding with Insulin and Insulin Sensitiveness in Tuberculosis, Munchen. med. Wchnschr., 73: 1473-1474, September 3, 1931.

10. No. 76542. Moutier, Francois: Treatment of Thinness and Emaciation with Insulin. Archives des Maladies de l'Appareil Digestif et des Maladies de la Nutrition, 16: 422-431. April, 1926.

11. No. 60080. Haemmerli, Armin: Treatment of Emaciation in Constitutional and Secondary Asthenia with Falta's Insulin Fattening Cure, Schweizerische medizinische Wochenschrift, 56: 1095-1100, November 13, 1926.

12. No. 59734. Bodmer, H.: "Fattening Cures with Insulin," Schweizer medizinische Wochenschrift, 56: 422-424. May 8, 1926.

13. No. 56131. Nobecourt; and Levy, M. M.: Insulin in Athrepsia. Bull. et mem. Soc. med. d. hop. de Par., 49: 1139-1141. July 17, 1925.

14. Lublin, A.: The Influence of Insulin upon the Carbohydrate Utilization in the Non-diabetic organism. Archiv. f. Exper. Pathol. u.

15. No. 77464. Schonfeld, S.: Regarding Forced Alimentation with Insulin in Tuberculosis, Ztschr. f. Tuberk., Leipz. 48: 224-229. 1927.

16. No. 53159. Frank, E.: Forced Alimentation with Insulin, Deutsche med. Wchnschr. 53: 219-222. February 4, 1927.

17. No. 104157. Fancher, J. Kenneth: Insulin in Mal-nutrition, J. M. A. Georgia, 18: 30-33. January, 1929.

18. No. 108338. Bockheler, T.: Fattening with Insulin, Munchen. med. Wchnschr., 46: 1921-1924. November 13, 1926.

19. No. 108339. Schlapper and Kerchner: Increase in weight after Insulin or Synthalin Administration, Beitr. z. klin. d. Tuberk., 66: 400-404, 1927.

20. No. 108340. Lang, F.: Insulin Fattening in Phthisis Sanatoria, Wien. klin. Wchnschr.; 4: 55. March 17, 1927.

21. No. 108276. Trocello, E.: Insulin as a fattening cure. Rassegna di clin. terap. e sc. aff., Roma, 26: 63-66. March-April, 1927.

22. No. 108045. Dumarest, F., and Theodoresco, B.: On the use of insulin in the anorexia of pulmonary tuberculosis. Rev. de la tuberculose, Par. 8: 385-387, June, 1927.

23. 108342. Zelter, H. G.: Forced Alimeintation with Insulin in Tuberculosis, Ztschr. f. Tuberk., 52: 191-198, 1928.

24. No. 108053. Schur, H.: The Relations of Insulin to the Fat Metabolism and to the Ketone Bodies, Endokrinologie, 5: 282-303. 1929.

25. No. 108072. Lundberg, E.: The Problem of Carbohydrate Metabolism in Pulmonary Tuberculosis, Acta med. Scandinav., 71: 493-520, 1929.

26. No. 108223. Sticotti, S.: Insulin as a fattening therapy in tuberculous individuals. Gior. di tisiol., Napoli 6: 217-221. August 31, 1929.

27. No. 108341. Meythaler, F.; and Cario, R.: Antagonism between Adrenalin and Insulin in Regulation of Blood Sugar, Arch. f. exper. Path. u. Pharmakol. 154: 193-202, 1930.

28. No. 108172. Torello Cendra, M.: Insulin in cases of malnutrition of digestive origin in early infancy. Ars. med., Barcelona, 6: 333-337, September, 1930.

29. No. 108219. Roberti, C. E.: Insulin therapy in mental diseases. Rassegna di studi psichiat., Siena, 19: 628-37, July, August, 1930.

30. No. 108343. Horsters, H.: Nutrition-Relation Between Distribution of Insulin in Organism After Its Injection, Manner of Nutrition and Sugar Content of Blood, Arch. f. exper. Path. u. Pharmakol., 153: 231-243, 1931.

31. Pitfield, extract New York Med. Jr. 118:217, 1923.

32. Marriott, extract J. A. M. A. 83: 600, 1924.

33. Barbour, extract Arch. Ped. 41: 707, 1924.

34. Fischer and Rogetz, extract Am. J. Dis. Ch. 31: 363, 1926.

INDUSTRIAL HYGIENIC PROBLEMS OF THE COPPER MINING INDUSTRY

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INTRODUCTION

The industrial hygienic problems of the copper mines are similar to those found in other metal mines. The extensive use of machinery has introduced a number of problems that affect the workmen more or less seriously. Consideration of all of these problems even briefly, could not be limited to a short paper. Consequently, it was thought best to confine the paper to the effect of dust.

The study of dust is receiving more consideration at present by the medical profession than any other hygienic problem in mines. This subject was thought to be especially applicable to this section, as a review of some of the mining papers[1] shows that the chemical analysis of some of the ores of the Arizona copper mines shows 69 to 69 per cent of free silica. Dust with silica content as high as this is recognized by the medical profession as being extremely dangerous when breathed in sufficient quantities for a considerable time. This paper will therefore undertake to discuss silicosis and suggested methods for its control.

DEFINITION

Silicosis is a synonym for that form of pneumonoconiosis produced by silica dust. It is a chronic disease of the lungs, characterized anatomically by fibrotic changes in the lungs and clinically by a progressive dyspnea, decreased chest expansion, and decreased capacity for work out of proportion to physical evidence of disease.

HISTORY OF THE DISEASE

Probably the most complete history of the disease is given in the Milroy Lectures of Dr. Edgar L. Collis. Dr. Collis quotes Herbert Spencer in his account of human

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progress as saying that the starting point was "localization of human industries." He also quotes Sir Charles Lyell[1] and Dr. Isaac Taylor[2] as having described such localization in prehistoric factories for the manufacture of flint implements. A number of early writers, including Hippocrates, George Bauer, Chateauneuf, and others of this early period, described the effects of dust upon the lungs of miners and displayed familiarity with the disease little short of our present knowledge. Following the discovery of micro-organisms as a cause of disease, little thought was given for many years to the subject of dust, but within the last few years the subject has been revived and serious study has been given to the disease in this country and abroad. It has been found to be prevalent in the mining districts of Austraila, New Zealand, Great Britain, South Africa, and America.

More work has probably been done on the study of silicosis in South Africa than in any other country. For the years 1908 and 1909, the Miners' Phthisis Committee of South Africa considers that, out of a population of 12,000, approximately 1,000 men in any one year would reach the stage of definite incapacitation[3]. In the United States, investigators have found that silicosis is prevalent in many of the mining districts in the States of Missouri, Montana, Nevada, Idaho, Arizona, California, Alabama and Vermont. It is stated by Dr. A. J. Lanza, Assistant Medical Director, Metropolitan Life Insurance Company, that there are probably as many silicotics in the State of New York as there are in any other state of the Union. The disease is often contracted by those engaged in tunnel work, in excavations for large buildings, and in various dusty industries. Silicosis is not a rare disease, found only in certain localities, but is a widely scattered one, affecting a large number of men in the United States.

ETIOLOGY

The etiology of silicosis can be divided into predisposing and exciting causes. Among the predisposing may be mentioned race, age, occupation, physical condition, and disease. Age is an important etiological factor, as the disease apparently affects those beginning work in a dusty occupation in late life much more frequently than it does young men. It is now well recognized that the physical condition of the men is an important predisposing factor. Nasal obstructions sufficient to cause mouth breathing increase the incidence of silicosis. The presence of respiratory diseases, such as tuberculosis and asthma, have a very important bearing upon the incidence of silicosis.

The most important single predisposing factor is occupation. Mining is recognized as a dusty occupation However, not all men engaged in mining are exposed to large amounts of dust. The exposure to dust is largely limited to face men, most of whom are drillers, shovelers and their helpers, roof trimmers, and those who work in and around the face of the stope. Many underground occupations expose the men to very little dust, in some instances to less than they encounter upon roads and highways.

The exciting cause of silicosis is inhalation of finely divided particles of silica (SiO^2) over a relatively long period. Several theories are advanced to account for the harmfulness of silica dust. The old theory, and the one accepted by many, is that the fibrosis is produced by action of sharp-cutting edges and needlelike points, together with the insolubility of the dust particles. Dr. Leroy U. Gardner[4] calls attention to the fact that not all dust particles with such physical characteristics, carborundum for example, would readily produce a fibrosis. Dr. R. R. Sayers[5] states that Dr. Haldane notes that silica dust without sharp-pointed particles, such as precipitate silica, when heated enough to dehydrate, if inhaled, will cause silicosis similar to that produced by quartz dust. These facts occasion many investigators to believe that the mechanical action of silica dust has very little importance. Many investigators think that the fibrosis is produced by the chemical action of silica. Dr. W. M. Myers[6] found that silica dust from the Picher, Oklahoma, field was soluble in water. Dr. A. Mavrogordato[8] reports that silica is soluble in weak alkaline solutions similar to body fluids. He concludes that solubility and chemical activity of silica have great importance and that hardness and sharpness have but little importance in causing silicosis.

Another physical characteristic of etiological importance is the size of the dust particles. It is generally accepted by most writers that only those particles less than 10 microns in diameter are retained in the lung tissue. The larger particles are caught and removed by the ciliated epithelium of the air passages. Dr. A. Watkins-Pitchford and Dr. Moir[7] write that the dust particles in the lungs of miners on the Rand were mostly less than 5 microns and that only one particle in 2000 was over 8 microns and only one in 1,000,000 as much as 14 microns long.

The quantity of dust breathed by the men

is one of the most important etiological factors. This is recognized by all investigators and an attempt has been made to set an arbitrary limit upon the amount of dust in the air that would offer a reasonably safe condition. D. Harrington[10] states that the South African standard is 5 mg. or 300,000,000 particles per cubic meter of air. Dr. W. T. Nelson of Australia[11] states: "The Inspector of Mines considers it inadvisable for men to work in air in which dust counts exceeding 300 particles per cubic centimeter have been obtained." Section 7 of the Metal Mining Code of Oklahoma sets the standard as 300 particles per cubic centimeter. This standard has been adopted by the Industrial Board of the State of Kansas in its rules and regulations on mines.

The figures indicate rather close agreement among investigators of the dust problem in different countries that around 300 particles per cubic centimeter of air can be regarded as reasonably safe from injurious effects. But to maintain this low dust count in many mines is very difficult, so much so that in many mines it is not undertaken. D. Harrington[10] states: "There is probably not one dry mine in the United States, coal or metal, where the average is as low as 5 mg. per cubic meter of air. In general, the average air dustiness of working places of our dry metal mines runs about 20 mg. per cubic meter of air and many run about 50." These figures indicate that the workmen in the dry metal mines of the United States are exposed to larger quantities of dust than are those in South Africa or Australia; that it would be logical to assume that the average American miner would contract silicosis in a shorter period of time than they do in these countries. Dr. Sayers[12] states: "In the gold mines of South Africa where conditions are good the average time of exposure of men before simple silicosis can be diagnosed is 7½ years; the shortest period of exposure is reported to be 2½ years." All the factors given—namely, kind and quantity of dust, physical characteristics, physical condition of the men, disease, age, and length of exposure—have an important bearing on the etiology of silicosis, but their importance varies with different localities, fields, and working conditions to such extent that it is probably better to consider them as a whole and say that under average conditions first-stage silicosis will occur in 2 to 10 years, and with unfavorable conditions this period will be reduced to as low as 2 to 3 years and probably less.

SYMPTOMS

The development of silicosis usually extends over a period of years and is so gradual that the early symptoms of the disease often are not recognized by those so afflicted. The slow progress in the development of the disease has caused obserers in this country and abroad to divide the disease arbitrarily into various stages. In the United States, silicosis is divided into three stages: first, second, and third. In South Africa the law defines the stages as antiprimary, primary, and secondary. An Australian report divides pulmonary findings into fibrosis increased, early silicosis, advanced silicosis, silicosis plus tuberculosis, and tuberculosis only. As this would indicate, the symptoms are somewhat different in the three stages, and for this reason the symptoms, physical signs, and x-ray findings will be given by stages.

First Stage. The objective symptoms in first stage silicosis are vague and more infrequent than would be expected from the definite lung pathology revealed by x-ray examination. In our own studies only about 18 per cent of the men admit any symptoms. The most common symptoms are cough, shortness of breath, expectoration, pain in the chest, and frequent colds, the last being the most prevalent. Some miners state that they have a cold during the entire winter. Objective symptoms and signs are not as frequent as would be expected. As a rule, the men appear healthy; they have ruddy complexion and are more robust than essentially negative subjects. There is a definite tendency for men with silicosis to gain in weight. This is most noticeable in the second stage of the disease. The men appear to stand more erect, and the muscular development is more noticeable than in negative subjects. This is not so marked in first-stage silicosis as it is in later stages, but is noticeable to a certain extent in the first stage.

The cardinal physical sign in silicosis is a decrease in lung expansion. The decrease in chest expansion is of relative importance and is not to be accepted as a literal finding, for it is well known that many men in excellent health have a small lung expansion. This is particularly true of the American negro. It is therefore necessary, in order to evaluate the findings from chest measurements, for one to have some previous information of the normal expansion of the man being examined. The chest movements, even in early silicosis, will be found to be less elastic than those of the

normal chest. The chest appears to have a retarded or "dead" movement.

Little is revealed on palpation of the chest in first-stage silicosis. On percussion it will be found in some cases that there is a slight change in the character of the percussion note. The chest has a "dead" sound which becomes very definite and occurs in a large percentage of cases with second-stage silicosis. Definite dullness may occur in the first stage, but it does not often do so. When noted, the dullness is usually found in the lower axilla region.

Ausculation reveals a definite difference in breath sounds, even in early silicosis. This sound is described by different terms and is usually referred to in our own work as a "rough" sound. The respiratory wave is a short, jerky, interrupted or metamorphosing inspiration with a prolonged expiration. The inspiratory sound is shorter than normal, and more harsh, while the expiratory sound is prolonged.

The changes in breath sounds are detected most easily over the anterior or lateral walls of the chest. It is our experience that this type of respiration occurs in 57 per cent of our cases. It is rather interesting to note that, with the marked pathology revealed on x-ray examination, rales rarely occur except in the late stages of the disease, when it is often complicated with some other condition.

X-ray findings. The diagnosis in the early stage is largely a matter of x-ray examination. It is well to call attention at this point to the fact that x-ray pictures of silicotic cases should be made slightly harder than chest pictures for tuberculosis. This is necessary to block out the general fuzziness and haziness occurring in a large number of cases. If this is done, the reader can classify the lung changes with more definiteness, and it lessens the number of differences between the clinical and x-ray findings. Although it is true that the x-ray gives a definite idea of the extent of the pathologic changes, the reader should have considerable clinical experience, for only with wide clinical experience can one determine the effect upon health and working efficiency with a fair degree of accuracy. The x-ray pictures in first-stage silicosis show the hilum shadows enlarged and very dense. In many instances they contain calcified spots much larger than those observed as a result of early tuberculosis. Following enlargement of the hilum shadows, the entire bronchial tree increases in density and can be traced to the outer margins of the lungs. Along the thickened bronchial tree, appearing first near the hilum, are small shotlike spots, sometimes described as "beads" or bronchial "buds." When the spots become noticeable throughout the lower section of both lungs, in this country it is regarded as the beginning of first-stage silicosis. The spots are fairly dense, about 1/8 inch in diameter, discrete, and irregular in outline. As the disease advances the spots increase in diameter, number, and density.

Second-Stage Silicosis. The subjective symptoms in second-stage silicosis are more definite and constant than in first degree. The most common symptoms are shortness of breath, cough, expectoration, pain in chest, loss of strength, gastro-intestinal disturbances, and a definite tendency to frequent colds. The shortness of breath becomes very noticeable on exertion and is most marked in men with poor initial lung expansion. Cough is a fairly constant symptom in this stage. It is a characteristic dry, hard, irritating cough, occurring most frequently in the morning. Gastro-intestinal symptoms are quite common and often are considered by the patient to be the cause of the dyspnea. The symptoms most commonly complained of are indigestion, flatulency, and constipation. Pain in the chest is a frequent symptom and is usually located in the anterior section of the chest, near the bases. Patients usually consider this pain rheumatic in origin, and, unless they are asked about rheumatism, this symptom may be overlooked.

The objective symptoms in second-stage silicosis are definite and characteristic. The men appear to be healthy, to stand erect, and to be compactly built. They have a definite tendency to gain in weight. This is probably due, to some extent, to the age of the men, as silicosis is more likely to occur in those around the age of 40 or older than in younger men, but probably it is partly due at least to the slowing-up in the amount of work performed, due to the dyspnea.

Inspection of the chest shows it to be unusually thick. The intercostal spaces are no longer noticeable. The chest is rigid and appears to move as one piece, especially the upper part. Full inspiration is made with visible effort. The chest measurements show a decrease in lung expansion, but, as in first degree, this is not sufficiently marked to have diagnostic value unless previous information on chest expansion of the patient is available.

The percussion note in second stage shows a "dead" sound, as was referred to in first stage. Areas of definite dullness are more common in second stage than in first stage. Auscultation reveals the characteristic breath

sounds described in the first stage, but they are more definite in character and more common. Rales are not usually present, but when found they indicate some infection.

X-ray findings in second-stage silicosis show the hilum shadows to be large and dense; however, they display no more definite changes than are observed in first degree, if as definite. The "beading" or "budding" along the bronchial tree becomes larger, more profuse, denser, and clearer in outline. The chest may be best described as "mottled." The mottling is bilateral and about equal in density on both sides, indicating that the condition started on both sides at about the same time. The diaphragm is often humped in this degree.

Third-Stage Silicosis. In third-stage silicosis the diagnosis can often be made from the symptoms and physical signs only. The symptoms in this stage are the same as are given in the second stage but are very much more definite. The shortness of breath is marked and in many cases becomes distressing on the least exertion, such as disrobing, talking, and so forth. Manual labor is almost impossible, and, as the disease progresses toward its terminal stage, respiration becomes very shallow and difficult. In this condition the fight for breath overshadows all other symptoms. Cough is troublesome and occurs most frequently at night and in the early morning. The cough is sometimes relieved by vomiting and is more likely to be productive than in the preceding stages. Pain in the chest is a frequent symptom and in some instances is severe, but in most cases it is a dull aching pain. Gastro-intestinal symptoms are very annoying. Hemoptysis and night sweats are often noted in this stage but are considered to be due to tubercular or pyogenic infection.

Objective symptoms are often obscured in this stage by intercurrent diseases. Very seldom is the third stage reached without complication with some other disease. Consequently, the symptoms and physical signs of the intercurrent diseases may mask the symptoms and physical signs of silicosis. The patients with uncomplicated silicosis appear to be healthy, to have a ruddy complexion and to be of average weight; in many cases there is an increase in weight, and in some cases they may be termed "fat." The chest appears to be in full inspiration, with very little movement, breathing being largely diaphragmatic. The physical signs are similar to those noted in second-stage silicosis but are more definite. There is a definite decrease in lung expansion; the characteristic breath sounds of silicosis are always found. In this stage rales are more common than in the preceding stages, and are due to infection by other organisms.

X-ray findings. In the third stage of silicosis the spots described under "Second Degree" tend to coalesce, forming large areas of marked density, usually located in the midsection of the lung; these areas present the appearance of tubercular consolidation, are usually bilateral, and blend perfectly with the snowstorm appearance of the surrounding lung tissue. This appearance of x-ray findings usually makes differential diagnosis between silicosis and tuberculosis fairly easy.

PROGNOSIS

The prognosis in silicosis is favorable in the first and second stages, unfavorable in the third stage, and becomes less favorable when complicated with either tuberculosis or pyogenic infection. However, complicated cases of silicosis should not be regarded as always fatal.

TREATMENT

The treatment can be divided into curative and preventive. In early silicosis most cases will recover within 18 months to two years if removed from a dusty atmosphere. In advanced cases it is best to treat symptoms as they arise, to remove the patient from a dusty atmosphere, to regulate the diet, and to allow moderate exercise. Our observations of these cases extending over a period of years lead us to believe that these patients especially in the early stage, do much better if allowed to do light work. Even in the advanced stages, it is best to allow these men to be up on their feet as much as possible. This course tends to lessen toxic symptoms, makes the patient more contented, and in a number of instances, even in advanced silicosis appears to prolong life.

The preventive treatment is most important. Early writers advocated the wearing of bladders over the face to prevent the dust from entering the lungs. In late years various kinds of respirators have been advocated but for many reasons have been found to be of little value in decreasing the incidence of silicosis. At present three measures are advocated that have been proved to be of definite value. The measures are: (1) Reduction of the dust count in mine air to less than 300 particles per cubic centimeter of air; (2) the selection of the men that work in a dusty atmosphere by careful pre-employment examinations; (3) the yearly examination of men and the changing of those with early silicosis to positions free from dust, on the surface.

The control of the dust in the mine air is

largely an engineering problem, but the assistance of the industrial physician is usually valuable and is welcomed by most engineers. The most common measures used to control the dust are adequate mechanical ventilation, sprinkling the muck piles, roadways, walls, and roof at frequent intervals and in sufficient quantity to keep them thoroughly wet, wet drilling and blasting at the close of the shift only, allowing several hours' interval for the dust to settle before the men are permitted to return to the place. With these measures conscientiously carried out, the atmospheric dust count can be kept below that recommended as a maximum for safety.

The second and third measures for the prevention of silicosis lie largely in the hands of the medical profession. Pre-employment physical examinations of men should be required. The physical examination of men for such work should not only include a careful physical examination, but a blood-serum test, a sputum examination, and an x-ray picture of the chest. The examination should be as thorough as that obtained in the large diagnostic centers. This is necessary, not only to obtain information on the physical fitness of the men, but to dispel antagonism of the workmen toward a physical examination. As soon as the workmen realize that they can secure a physical examination equal to that obtained at some expensive clinic for themselves and their families, at their own medical center, their antagonism usually changes to active cooperation.

After entering the service of a company the man should be examined at least once yearly. This examination should be as thorough as the pre-employment examination. The purpose of this examination is to find the disease, in the early stages, when the chances for complete cure are best. By this method the effect of dust can be observed and men with early silicosis placed at work in an atmosphere free from dust, or, in the absence of such places, they can be persuaded to leave the mines.

The results of the examination should be placed on a card, which is given to the man to be given to the party hiring him. The men should be classed according to the physical findings into grades that would convey to the foreman, or others hiring the men, information as to whether or not there are defects, such as an infectious disease, or a possibility of sudden death; whether or not there exist no defects that would interfere with work at any place in a mine; or that they are recommended for certain occupations only. The decision of the physical fitness of the men to be employed should always be entirely in the hands of the physician.

CONCLUSIONS

1. History indicates that silicosis originated from the localization of human industries in prehistoric flint factories.

2. The cause of silicosis is the inhalation of minute particles of free silica over a relatively long period of time. Certain physical defects and diseases apparently predispose to silicosis.

3. In this country the disease is commonly divided into three stages; namely, first, second, and third.

4. The symptoms and physical signs of silicosis are vague and indefinite in the early stages, but become more constant and definite in the second and third stages. When present, the symptoms are shortness of breath, cough, expectoration, and a tendency to frequent colds. The cardinal physical signs are decreased lung expansion and the characteristic breath sounds.

5. The x-ray findings in silicosis are characteristic. The changes usually start near the hilum shadows, with formation on the bronchial tree of what are called "buds." As these extend throughout the lower section of the lungs, it is commonly called in America first-stage silicosis. With the coalescing of these spots into larger areas, it is regarded as second-stage silicosis. When these areas become sufficiently large to give a "snowstorm" appearance to the plate, it is regarded as third-stage silicosis.

6. Silicosis can be controlled and reduced to a minimum by reducing the dust content in the atmosphere below the standard set for safety, and by pre-employment and yearly examination of the man.

REFERENCES

1. Thomas, Robert W., Mining Practice at Ray Mines, Nevada Consolidated Copper Co., Ray, Ariz.: Inf. Cir. 6167, Bureau of Mines, September, 1929, 27 pp.

Garms, W. I., Concentrator Methods and Costs at the Hayden Plant of the Nevada Consolidated Copper Co., Arizona: Inf. Cir. 6241, Bureau of Mines, February, 1930, 25 pp.

2. Collis, Edgar L., Milroy Lectures, 1915, p. 3.

3. Lyell, Sir Charles: Antiquity of Man.

4. Taylor, Isaac: Origin of the Aryans, p. 181.

5. Report of First Annual Series of Physical Examinations. Picher Cooperative Clinic, U. S. Bureau of Mines. (In preparation for Publication.)

6. Gardner, Leroy U., Studies of Experimental Pneumonokoniosis. Reprinted from The American Review of Tuberculosis, Vol. XX., No. 6. December, 1929.

7. Silicosis Among Miners: Technical Paper 372, Bureau of Mines, 1925, p. 9.

8. Myers, W. M.: Solubility of Finely Divided Rock Dusts in Water, Kerosene and Alcohol. Rep.

of Investigations 2548, Bureau of Mines, 1923, 6 pp.

9. Mavrogordato, A., Studies in Experimental Silicosis and other Pneumonokonioses, Publication of the South African Institution for Medical Research, Johannesburg, March 31, 1922, 164 pp.

10. Harrington, D., Engineering-Hygienic Aspects of Dust Elimination in Mines, p. 201.

11. Report on an Investigation of Pulmonary Conditions of Mine Employees, Western Australia years 1925-1926, pp. 50-53, Table 2, S. P. No. 5.

12. Sayers, R. R.: Silicosis Among Miners: Technical Paper 372, Bureau of Mines, 1925, p. 6.

THE TREATMENT OF PNEUMONIA WITH QUININE

(A Case Report)

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Case 21951, St. Joseph's Hospital, female, age 16, was admitted to the hospital 8:35 p. m., Feb. 18, 1931, with provisional diagnosis of influenza cold. The temperature on admission was 103.6. The following morning the temperature was 105 degrees, and ranged from 102 to 105 during the next three days. On the 20th slight but definite signs of lobar pneumonia appeared in the entire left lower lobe.

She had been ill four days before admission to the hospital and ran a persistently high temperature. About ten days before admission her tonsils had been removed. It was kept in mind that her illness might be a complication of the tonsillectomy. Except for the high temperature the findings were negative, however, until the signs of lobar pneumonia appeared.

The second day of her illness she was given capsules of alkaloidal quinine, five grains every hour for four doses and then one every four hours until she was taken to the hospital. She felt fairly well but the high temperature persisted; as she was not getting all the care she needed, she was taken to the hospital.

On admission to the hospital she was given intramuscularly the proprietary preparation of quinine, camphor and volatile oils, known as quicamphol, one ampoule every four hours for six injections. There was no more effect upon the temperature by the quicamphol than there had been by the quinine by mouth. The lungs, however, had not yet shown involvement.

Thinking that the invading organisms might be streptococci or other bacteria not susceptible to quinine, this was discontinued and sodium benzoate in large doses was given by mouth. On the first day of sodium benzoate administration the temperature fell from 105 to around 103; but the next day, with the sodium benzoate being continued as before, the temperature rose to 105 and remained constantly at that level throughout the day. The left lower lobe began to show definite signs of lobar pneumonia. The sputum examination on this day showed only pneumococci.

The sodium benzoate was discontinued and quicamphol was again given but this time one injection every hour for four doses and then every four hours until six injections were given. The temperature promptly fell within 12 hours to 99.4. That evening it rose to 100.8. The next day it fell to 98.0 and then ranged around 99 for two days, after which it was normal. The signs of the pneumonia faded away with the fever.

I recognize full well that a crisis might have occurred just as the hourly doses of quicamphol were started. My belief, however, based on similar experiences in a large number of cases, is that the quinine was effective in checking the pneumococcic process. It seems that the amount of quinine given her in the early days of her illness was adequate for holding the disease in check but not adequate for putting a stop to the growth of the pneumococci in the tissues. Likewise the quinine in the quicamphol given one injection every four hours was not adequate to kill sufficient of the bacteria to definitely check the disease. Definite signs of pneumonia did not appear until the administration of quinine was discontinued and the sodium benzoate instituted.

There are several possible explanations of the slow and inadequate action of the quinine on the pneumococci in this case. The patient was a large woman weighing around 180 pounds. The concentration of quinine in her blood may not have been sufficient to be pneumococcocidal. She also may have eliminated quinine with undue rapidity or her tissues may have absorbed it extremely slowly from her stomach. Then too the pneumococci affecting her may have been more than ordinarily resistant to quinine.

I am convinced that quinine has a highly specific toxicity for all true pneumococci. In a previous communication[1] I reported that 67 cultures of pneumococci taken from as many patients were destroyed within one to three hours by high dilutions of quinine. Pneumonia, tuberculosis and all respiratory tract infections should have the use of quinine thought of in connection with their treatment.

The hypodermic administration may be perferable, probably is in certain cases, to administration by mouth. I have used the dihydrochloride of quinine as well as the mixture known as quicamphol. Ordinarily mouth administration suffices. My way of giving it by mouth has been to give five grains of alkaloidal quinine each hour for three to five doses and then every four to six hours.

This case, a sample of my experiences, is reported to call attention to the value of sufficient quinine in pneumococcic infection.

1. Brown, Orville Harry: The Treatment of Pneumonia With Quinine, Southwestern Medicine, March, 1931, Vol. XV, p. 109.

CASE REPORT

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I wish to present the following clinical case, which shows a malignancy of unusual interest.

Infant B. M., age 2 yrs. and 2 months, only child of young couple with negative Wassermann.

Child was nursed 6 weeks. Had measles at 6 weeks and was weaned at this time. Various foods were given and was finally brought up on Eagle Brand Milk.

The following is a letter from Drs. Camp & Camp describing the conditions.

"We have a boy 2 years o'd, who has an unusual condition of the head and face, which we think to

be an involvement of the bones. The alveolar processes are so much thickened that the roof of the mouth is only something like one-half inch across. The child is unable to close his mouth on account of the protrusion of the back teeth. The inferior maxilla is involved to almost the same degree as the superior. The cheeks protrude very distinctly. The left eye is pushed forward by some enlargement behind it and the tissues under it are quite dark. There is an enlargement in front of each ear and a row of nodules antero-posteriorly on top of the head. No involvement, that we have been able to find, of the long bones, or of any other bones except the ones mentioned. No skin lesions and no glandular involvement. The child had a very severe, acute sickness in November, 1930, with high temperature, vomiting, sore mouth and throat. Looked like he was going to die for several days. We fed him through nasal tube and gave him intraperitoneal

transfusions of father's blood. Patient has had no fever with this illness so far as we know."

In addition to the above information given by Drs. Camp & Camp, further inquiry from parents developed the fact that the child was ill for more than a month last November, temperature running from 104 to 105 with a bad infection of the throat, also both drums were opened and mastoid on left side involved but not opened. Throat was so inflamed that it was thought to be diphtheria and antitoxin was given. Child was so ill that its life was almost despaired of at this time, and as you know from Dr. Camp's letter transfusions were necessary. The condition has been described by Drs. Camp & Camp.

Figure 1 shows a full face view of this child, and Figure 2 shows the alveolar process and mouth.

Dr. Mott Rawlings has made a biopsy, removing a portion of one of the nodules on the head and will give a report of his findings.

J. MOTT RAWLINGS, M. D.: Specimen consists of a piece of tissue covered on one surface by epithelium and measuring some 5 by 5 by 3 mm.

A frozen section stained by hematoxylin and eosin is studied microscopically. The tissue how normal hair follicles markedly infiltrated with plasma-like cells. All intervening tissue is likewise infiltrated with great masses of these lymphocytic cells. On high powered examination mytoses are seen and some of these are found to be rather irregular in shape. The cells have a young appearance with central chromatin mass and smaller peripheral chromatin areas giving it the usual wheel or clocked appearance. The cells are massed together very densely and vary rather moderately in shape and

more especially in size, some cells being two to two and a half times the size of the smallest ones. The cells have the appearance of those belonging to the lymphocytic series of the plasma type. They appear to be rapidly growing and show evidence of only moderate differentiation. The tissue is in keeping with the diagnosis of lymphoblastoma of a rapidly growing type.

FINAL DIAGNOSIS: Lymphoblastoma highly malignant.

CASE REPORT

HARRY A. REESE, M. D.
Yuma, Arizona

In the August, 1914, number of Arizona Medical Journal you will find that I reported a case of Anencephalus. Some text book on teratology may be glad to secure these records; therefore, I am sending you herewith a report of another case. This is a case of Ectogenic Teratism which I found on August 18th, when I was called as health officer to sign a death certificate for a stillborn prema-

ture Yaqui infant. Here we have a complete absence of the lower jaw and tongue. The mouth is large enough to admit the tip of a finger. Protruding from the nose is a very small tongue shaped tag. The rudimentary ears are in a much lower position than normal. The left foot shows talipes valgus. The baby is a male, and was about three months premature. The mother is a multipara.

CEREBROSPINAL MENINGOCOCCIC MENINGITIS—SPECIFIC TREATMENT

H. P. MILLS, M. D.
Phoenix, Arizona

(Read before the Maricopa County Medical Society, Feb. 23, 1931.)

The specific treatment of meningococcic meningitis can be very briefly stated: the early, adequate administration, intravenously and intraspinally, of potent antimeningococcic serum, repeated at intervals of eight to twenty-four hours until the organisms have disappeared from the spinal fluid and the cell count is reduced to 1000 or less.

To enlarge upon the points mentioned. Early treatment is possible only in case of early diagnosis. If the diagnosis is made within twenty-four hours of onset and treatment with antiserum is instituted, a reduced mortality percentage will result. Every epidemic will show numerous extremely fulminant cases, due to extreme degree of bacteremia, that rapidly develop delirium and coma and become moribund before adequate treatment can be given. But most cases give symptoms of cerebrospinal involvement sufficiently early to suggest spinal puncture and the administration of antiserum if the spinal fluid is found cloudy.

Adequate treatment implies the administration of sufficient antiserum to counteract the bacteremia and meningeal infection. In most cases seen early, this should be given both intravenously and intraspinally. Test for sensitization to the serum should be made by injecting 1/10 of 1 cc. intracutaneously. If there is no reaction, 100 cc. of antiserum may be given intravenously, best diluted with equal amount of saline solution. This should be given slowly, watching for evidence of anaphylaxis and with adrenalin at hand, ready to be given on the first sign of reaction. The intravenous injection should be followed at once by a lumbar puncture, draining the canal quite thoroughly, with the idea of inducing the flow of bactericidal substances from the blood stream into the meningeal spaces. From 20 to 30 cc. of antimeningococcic serum should be given into the spinal canal after each spinal drainage; or, if only a small amount of fluid is obtained, the quantity of serum should be 5 to 10 cc. less than the amount of fluid withdrawn. The intravenous injection should be repeated every eight to twelve hours for two to four doses; after forty-eight hours, spinal drainage and intraspinal administration of serum is usually sufficient, as after this period the stage of bacteremia has probably passed. This intraspinal treatment is to be repeated

at least once daily until organisms are absent from the fluid and the cell count is reduced to 1000 or less. Spinal puncture should then be done every two or three days, to control cerebrospinal pressure and to check against relapse.

If there is evidence of subarachnoid block, the cisterna magna route may be used for drainage and administration of serum. This procedure has been recommended as a routine method and as preferable to the usual lumbar puncture; but, unless there is definite indication, it would seem rational to avoid any unnecessary risks, as long as we obtain practically the same results.

Occasionally, intraspinal drainage is overdone, and headache and rigidity are increased and are not relieved by replacement of the fluid with antiserum. In these cases, there is usually excess secretion of fluid with comparatively low cell count and few or no organisms. By limiting the amount of fluid withdrawn and extending the time between punctures, the condition rapidly clears up.

The question of the potency of the antimeningococcic serum should be given consideration. A polyvalent serum is used and in most cases is efficient, but it is conceivable that, due to the many strains of meningococci, cases may be encountered in which the serum at hand may not contain antibodies for this particular strain. This is a question rather difficult to answer as regards a case under treatment, and usually it is advisable, if favorable response is not obtained promptly, that a change should be made to a serum from another source. If a culture of the organism from the case be obtained, it may be tested against the serum for the presence of agglutinins. If the serum agglutinates the meningococcus cultured from the fluid in high dilutions, we may be fairly certain that it contains antibodies against this particular strain. The question has been raised whether the activity of agglutination is a correct measure of the bactericidal power; but for practical use this test for the presence of antibodies is the most available and can be used without great delay. This leads to the suggestion that culture be made of the fluid at first examination, in order that agglutination tests may be made if the question of potency of antiserum arises.

This specific treatment, of course, should be supported by general treatment in the way of proper nursing, diet, and especially the forcing of liquids.

The results of specific therapy have been very satisfactory, reducing the mortality from 75 and 80 per cent to 31 per cent.

To repeat, for the purpose of emphasis. Specific treatment for meningococcic meningitis consists in the early, adequate administration, intravenously and intraspinally, of potent antimeningococcic serum, continued at intervals until its bactericidal effect is obtained.

Since the infection occurs so seldom in known contacts, and since the protection is so transient from the use subcutaneously of antiserum, it is not recommended for passive immunization as a protective measure. Active immunization has been tried by using subcutaneous injections of repeated doses of a meningococcic vaccine. This has not been accepted as of value, and its value, if any, is difficult to determine, on account of the small percentage of known contacts who acquire the disease.

PUBLIC HEALTH NOTES

J. ROSSLYN EARP, M. D., P. H.
Director New Mexico State Bureau of Public Health

LA GRIPPE AND INFLUENZA

In a health bulletin issuing from the middle west I read "La Grippe, which is a second cousin to Influenza". In France there is a disease called La Grippe but no disease called influenza. In England there is a disease called influenza but no disease called La Grippe. The United States uses both words, but how that can make two diseases passes my understanding! It is hard enough to know what is and what is not influenza without introducing the complication of a second cousin.

Many physicians have remarked that "influenza" in these endemic days differs from that of the great pandemic. Can it be that the fulminating cases of those days were due to secondary infection with germs, like the Streptococcus haemolyticus, that had acquired a quite unnatural virulence through years of subculturing in thousands—nay, millions—of gunshot wounds?

It is true that many other infections, especially perhaps intestinal infections, are liable to be confused with that of influenza. The confusion is bound to remain until more is known about the etiology of the disease. We know that New Mexico physicians will be conservative in their diagnosis. At the same time, we hope that they will not refrain from notifying cases of influenza on the ground that they are not like the acute cases of 1918. Uniformity of reporting is vital to epidemiological research.

YELLOW FEVER AND DENGUE

The epidemiology of influenza is today in much the same state as was that of yellow fever a hundred years ago. Dr. H. R. Carter's posthumous monograph, recently off the press, makes instructive as well as fascinat-

ing reading. This book has been added to the library of preventive medicine at Santa Fe and may be borrowed by any New Mexico physician who is willing to return it within two weeks.

Among the many diseases confused with yellow fever in the early days, dengue naturally occupies an important place. Conveyed by the same mosquito, Aedes aegypti, the two diseases are geographically allied. Dengue has had many pseudonyms: Coup de barre, at Guadeloupe; la fievre inflammatoire in Martinique; el trancaso, in Porto Rico; and so on. Under some of these names mild cases of yellow fever have doubtless been included; for yellow fever and dengue have more in common than their geographic distribution—the muscular pains, the saddle-shaped temperature curve and the filterability of the virus which in each case is present in the blood stream during the first three days of fever. Recent work at the Tropical Hygiene Institute of Amsterdam[2] strongly suggests that an attack of dengue gives a certain measure of immunity against subsequent infection with yellow fever.

THE CAMPAIGN AGAINST CANCER

It is interesting to learn from a recent conference with a representative of the American Society for the Control of Cancer, that success has already been achieved in the popularization of the early symptoms and signs of cancer, Patients are now coming in good time for diagnosis and treatment. On the other hand, knowledge regarding the treatment of cancer has advanced beyond our standard textbook and our standard practice. Cases are being treated by surgery that could better be treated by radiology, and vice versa. Cases that need both technics are being treated by one only. In order to offer to the medical profession the very latest information in the treatment of cancer, the Society plans to publish a series of monographs, each by an outstanding authority. Arrangements have been made to secure free copies of these monographs for every New Mexican physician who desires to possess them. Application should be made to the county health officer, who will arrange to distribute them as they are published.

(1) Yellow Fever: an epidemiological and historical study of its place of origin. Baltimore: Williams and Wilkins, 1931. Pp. 307. Price $5.00.

(2) Arch. of Schiffs—u Trop. Hyg., Sept., 1931, p. 497.

HOTEL DIEU (El Paso) STAFF MEETING

September 9, 1931

DR. W. L. BROWN presented two gallbladder cases, the first being a parallel to a very recent case:

A woman, 46 years of age, came to us with gallbladder disease. Preoperative diagnosis of gallstones was made. She was not especially ill at the time of operation, had never been very ill and operation was decided upon. At the time of operation, May 3, 1927, no gallstones were found, gallbladder normal to feel as well as in appearance; could be easily emptied. There was an adhesion running full length of gallbladder across to the hepatic flexure of the transverse colon. This adhesion was freed, whipped over carefully to cover raw surfaces; gallbladder was not opened and a general exploration of the abdominal cavity was made, prior to the work on gallbladder and found negative. Patient started to vomit following operation, became distended with reversed peristalsis, in spite of all we could do. She had a great deal of pain, distention continued, and the wound was reopened on the third day, May 6, 1927. The stump of the adhesion was attached to the hepatic colon, apparently causing obstruction from the point of angulation. As soon as this was relieved, gas rushed into the transverse colon. This area was again covered and no drainage done. Again, two days later, as no relief was afforded, McBurney's incision was made. Cecum was found greatly distended, and a large rubber drain was sutured in place. A great deal of bloody fluid and gas escaped. Two days later, May 10, 1927, enterostomy was made on the left side and a tube was put into small intestine. This gave no relief; patient died following day, May 11, 1927.

Second Case: A woman 48 years of age, admitted to the hospital May 17, 1931. Operation was performed May 18, 1931. Gallbladder was found to be about six inches long and the width in proportion. Stone the size of a small marble could be felt in the cystic duct, impacted, and could not be dislodged. Gallbladder was easily shelled loose from under the surface of the liver, leaving a long pedicle. The pedicle was crushed just under the stone, ligated with No. 2 chromic and a small rubber drain was used, wound closed in layers. It proved to be a very easy operation, with no shock or disturbing symptoms following the operation. The following afternoon her temperature was 102° and continued to rise as high as 104° a day or two later. Peritonitis promptly developed, with great distention, which could not be relieved. Absence of peristalsis sounds and vomiting began on the third day. Patient was given large quantities of salt solutions subcutaneously, including 3 per cent salt and glucose. Pituitrin and enemas failed. This indicated that she had peritonitis. On the morning of the day of her death enterostomy was made. Cultures were made from free abdominal fluid, which was dark straw colored with fibrinous deposits on the intestine—showed to be streptococcus. There was never any localized abscess or any evidence whatever of localization; intestines were greatly distended throughout with large patches of exudate—no frank but a great deal of dark, straw-colored fluid.

Discussion: Of course, the paramount question is the source of this infection. There is nothing about the gallbladder, clinically, to suggest any source of serious active infection. Fluid in gallbladder was not pus but mucilaginous. The gallbladder was called hydrops because it was dark and very thick, but without acute active inflammation. It was easily removed. Dr. Waite reports that he found small microscopic abscesses in the walls of the gallblad-

(Continued on page 584)

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THE SOUTHWESTERN MEETING

The detailed minutes of the Seventeenth Annual Meeting of the Medical and Surgical Association of the Southwest will be published next month. It was considered a successful meeting, though to the critical officers of the organization this annual event can still be improved upon. We seem to have lost the zest and enthusiasm on the part of the entertaining county medical society which once was the feature of this meeting.

The attendance at the meeting was very satisfactory for a year when many doctors feel they cannot get away from home. The scientific program was of a very high order and the Program Committee deserve every commendation for their efforts. The symposium on allergy was the best presentation of that subject we have heard in the southwest, and the remainder of the program was of the same high type. The few clinics given by the Maricopa County Medical Society were excellent and deserved better attendance. The hotel arrangements at the Westward Ho and the session hall were excellent, and the social features, deliberately curtailed by the entertaining society, were much more enjoyable than if they had been more elaborate and costly.

Bernalillo County Medical Society will be the hosts for the meeting in 1932, at Albuquerque. The amendment to the Constitution which was proposed at the meeting of 1930, providing for a president-elect, was adopted. The result of this will be that Dr. Jamieson will continue as president until the Albuquerque meeting, when the president-elect will take office. The officers of the Association are as follows:

Dr. W. R. Jamieson, El Paso, President.

Dr. F. D. Vickers, Deming, N. M., President-Elect.

Dr. W. A. Gekler, Albuquerque, First Vice-President.

Dr. Orville H. Brown, Phoenix, Second Vice President.

Dr. W. Warner Watkins, Phoenix, Secretary-Treasurer.

Drs. Willis W. Waite, P. G. Cornish, Jr., and E. Payne Palmer, Trustees.

PROFESSIONAL BUILDING IN PHOENIX COMPLETED

With the completion and occupancy of the Professional Building, in Phoenix, at 15 East Monroe Street, the medical and dental groups of that city see the realization of hopes of many years, in a high class professional office building, designed and constructed for their particular needs. This is the first strictly Class A office building in Phoenix. It is eleven stories in height, air conditioned throughout, with every modern convenience for the medical profession. It has three silent elevators, one of which will accommodate ambulance or hospital stretcher. It has a basement garage accommodating fifty cars.

The central ground floor and second floor will be occupied by the Valley Bank with entrance on Central Avenue. The corner space is taken by the city offices of the Santa Fe Railroad. On the Monroe Street side will be a prescription pharmacy which will be owned by Mr. Wayland, who was chiefly instrumental in perfecting the plans for this building. The third and fourth floors will be occupied by professions other than medical, such as attorneys, architects, engineers, and so forth. The upper seven stories have been rented by physicians and dentists and are already about ninety per cent leased.

The greater portion of the fifth floor is occupied by the commodious quarters of the Pathological Laboratory. The entire western

wing, with both northern and southern exposures, comprising five thousand square feet of floor space is taken by them, doubling the space formerly occupied by them in the Goodrich Building; the clinical laboratories have the northern exposure, the x-ray laboratories being along the southern side with dark rooms in the center. The remainder of the fifth floor is taken by the Arizona Dental Laboratory, the Tri-State Dental Supply Company, and the Associated Optical Company, with the private office of Dr. John C. Austin (dentist) opposite elevators.

On the seventh floor the western frontage is taken by the group composed of Drs. Orville H. Brown, H. D. Atwood, Trevor Browne, P. B. Hoover and W. L. Reid. On the southern side are the offices of Dr. S. D. Little, and Dr. H. M. Purcell will have offices there also. In the tower wing are the offices of Dr. A. J. McIntyre and Dr. Edgar B. Pease (dentist). Dr. R. M. Dunlap (dentist) has the east wing and along the north side are the dental offices of Dr. F. R. Smith, Dr. R. A. McCall and Dr. E. M. Pafford.

On the eighth floor the southern offices are occupied by Dr. Willard Smith, Dr. L. H. Thayer, Drs. A. M. Tuthill and Norman Ross and Dr. James L. Johnson. In the west wing are the offices of Drs. J. L. Borah and C. E. Borah (oral surgeons); in the east wing, Dr. Claude M. Moore (dentist) has offices and along the north side are the dental offices of Dr. Spillane, Dr. R. D. Creamer, Dr. P. J. Ritchie and Dr. L. D. Dameron.

On the sixth floor, in the western end will be the offices of the Southwest Clinic group, composed of Drs. E. Payne Palmer, Frank J. Milloy, Dudley Fournier, Chas. N. Ploussard and John H. White. On the south side are the offices of Dr. A. C. Kingsley, chief surgeon for the Arizona Industrial Commission; on the same side will be the offices of Drs. David M. Davis and John W. Pennington. In the eastern wing are the offices of Drs. W. A. Schwartz and B. L. Melton. On the north side are the offices of Dr. T. T. Clohessy and the dental offices of Dr. H. A. Berry and Dr. George H. Chiles.

On the ninth floor the west wing is occupied by the group composed of Drs .George E. Goodrich, Vernon Kennedy, J. D. Hamer, Robt. S. Flinn and A. A. Shelley. The east wing is occupied by Dr. Harry R. Carson and

Dr. Harry B. Gudgel, separate offices. On the southern exposure are the offices of Dr. Edgar H. Brown. Dr. D. R. Gaskins occupies the tower suite, and the northern tier has the dental offices of Dr. John Lentz, Dr. H. J. Jessup, and Dr. T. W. Firth.

On the tenth floor the west wing is taken by Drs. John J. McLoone and O. W. Thoeny. The eastern wing is occupied by Drs. Fred G. Holmes, Victor Randolph and Howell Randolph. The tower space is taken by Drs. H. K. Beauchamp, James E. Drane and T. E. McCall. The southern offices are occupied by Drs. Ketcherside and Shields and Dr. C. C. Craig. Dr. T. W. Woodman has offices on the north side, the remainder of which is occupied by the dental offices of Dr. H. H. Braxtan and Dr. Wm. A. Baker.

On the eleventh floor, the west wing is occupied by Dr. J. Madison Greer. The east wing is filled by the offices of Drs. Kimball Bannister, L. R. Kober and E. C. Bakes. The southern tier is taken by the offices of Drs. Louis and Palmer Dysart, Dr. Fred C. Jordan and Dr. F. L. Reese. On the northern exposure are the offices of Dr. S. I. Bloomhardt and Dr. W. G. Barackman (dentist). The tower suite is taken by Dr. C. B. Palmer.

An attractive and important feature of this building will be the medical library in the twelfth floor tower room. Here a beautiful room, thirty feet square, has been turned over to the Maricopa County Medical Society for the headquarters of the organization and their medical library. The society has already spent several hundred dollars in preparation of this library. There will be coming regularly to the library seventy-five or eighty medical magazines which will be arranged for convenient reference. The room has exposure on three sides, with large windows. The views from the room in any one of the three directions,—east, west or north,—are among the most beautiful to be found in the city.

HOTEL DIEU (El Paso) STAFF MEETING

(Continued from page 581)

der, but doubted if these could have contained streptococcus. Both of these cases were apparently easy cases, with none of the supposed danger signals of infection—gangrene, common duct obstructions, or anything of that sort. They were up walking around, were not sick to amount to anything at the time. Both walked into the hospital and they were the last cases that one would expect to prove fatal.

DR. GALLAGHER suggested that the source of infection in the first case might have been in the liver, culture from the liver might have shown this. Brief discussion of a streptococcic infection in an appendix, where a culture was taken. There was no evidence of infection, patient's temperature at operation was 99°, went to 104° in the afternoon and at midnight was 106°. Patient was given 150 grains of aspirin in 4 ounces of starch water by rectum and this was repeated in 4 hours. Temperature dropped and patient recovered. Another case of a rather thick gallbladder with stones, went home on the fourteenth day draining light yellow bile, though no bile could be found at operation. Four days later, temperature came up, there was chest dullness and pus. Rib resection was done and patient was recovering nicely; no drainage of bile since operation.

DR. GARRETT said that he occasionally sees, from a medical side, these cases who have temperature after operation. Two cases recently seen who had temperature before operation. One woman gave a history of several attacks of abdominal pain with fever. Gallbladder was removed, temperature went to 103°, with a chill; there was no evidence of stones, no jaundice; temperature went to 104° and patient had a very stormy time for several days and almost died. Infection was either from liver or gallbladder, since either will filter bacteria when it ceases to act. In some instances, vaccines are being given in gallbladder operations to raise the patient's resistance; glucose and sugar are also used to increase the resistance.

DR. BROWN was of the opinion that the use of vaccine in the Mayo Clinic is mostly an experiment before colon resections, where there is danger of colon and streptococcic bacillus combined.

DR. CUMMINS asked what would be revealed by a study of gallbladder surgery in different hospitals for the past 5 years. The mortality in gallbladder surgery is high; what is the cause? He then gave a brief outline of the recent result of studies along this line by different authorities.

DR. WAITE discussed two deaths, one following gallbladder operation and duodenal ulcer; the second, removal of the uterus. There was some streptococcic infection somewhere, probably pockets of microscopic size abscess which planted streptococcic infection on the raw surfaces. The mortality rate in prostate cases used to be high; that has been lowered, considering the seriousness of the case, by proper preparation of the patient before operation. Any patient past 45 years of age is entitled to blood chemistry before operation. A high blood sugar aids the spread of infection. The use of glucose may not be so good unless used with insulin. At any rate, lower the blood sugar and the danger of spread of infection is lowered.

EL PASO COUNTY MEDICAL SOCIETY

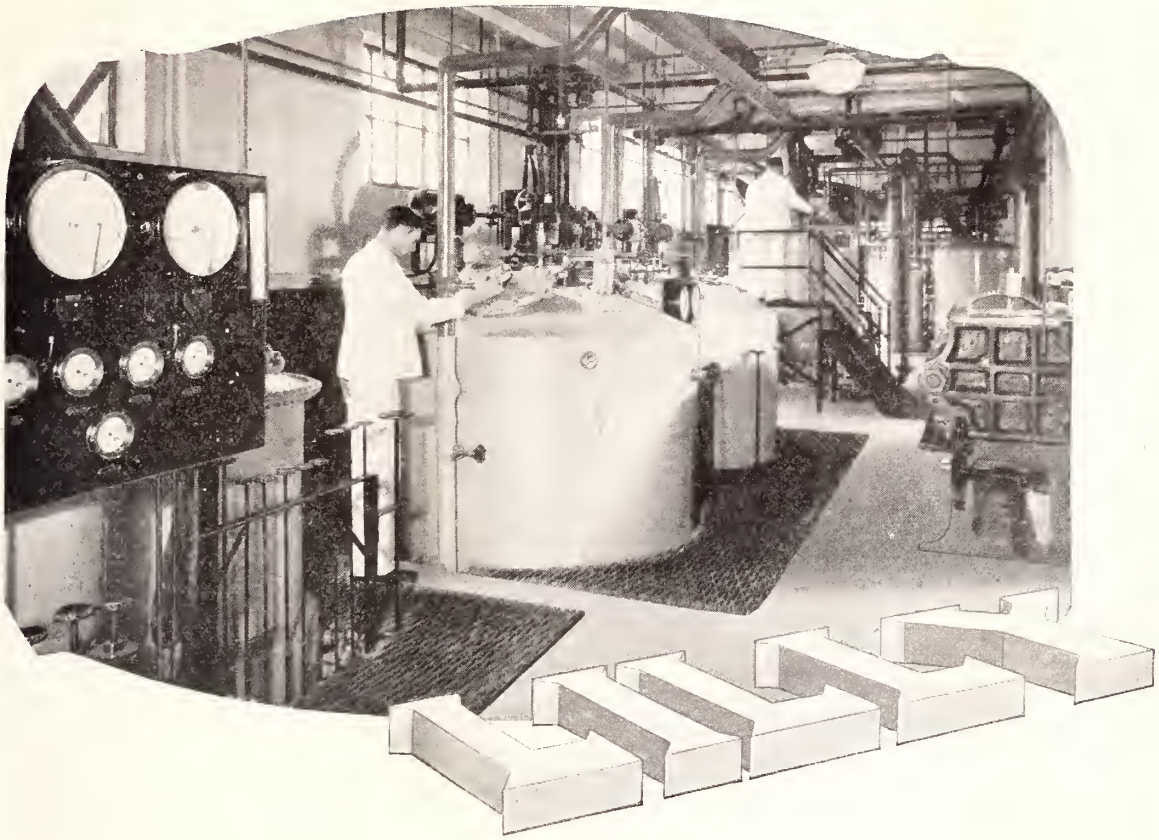
Meeting of September 28, 1931.

Meeting called to order at 8 p. m., by the president, Dr. J. W. Laws. There were present 44 regular members, 8 army physicians and 2 visitors. Minutes of the last meeting were read by the secretary, Dr. Ralph Homan, and approved.

DR. HARRY LEIGH presented two thymus cases, babies, in each instance the second child born to young healthy parents, the first child having died suddenly.

First case: Child, Mexican, age 1 year, exceptionally well nourished, with large, nicely formed chest; angelic type of child. X-ray taken simply because parent's first child had died suddenly, shows heavy upper thoracic shadows. No symptoms except a little hoarseness. The first child of these parents nursed beautifully and was growing finely, but when about three years of age someone persuaded the parents to have a tonsillectomy done and with the first whiff of ether, the child died.

Second case: Child, American, about 1 year of age; had been very thin but has now filled out some and is coming along nicely. This child has a



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PROGRESS THROUGH RESEARCH

high chest and rotund body, which is nearly always seen in this type of case. A great many of these children are short necked and heavy. Skin is very transparent and seems almost clear. X-ray shows very heavy upper thoracic shadows. The first child born to these parents was delivered after an unusually easy labor, but the following Thanksgiving the child was having convulsions, was very cyanotic and was sent to the hospital where a diagnosis of cerebral hemorrhage was made. It made a remarkable recovery and afterwards did beautifully, growing nicely and was getting fat. One day it developed a respiratory infection and the parents sent for me. I was pretty busy on a case at the time and could not go just then, and as they said the baby looked bad, I had them bring it to the hospital. Later, when I arrived, the child was dead, having developed a cerebral hemorrhage apparently without adequate cause.

In general, I personally feel somewhat skeptical about the thymus being responsible for any condition because physiologically we have never been able to demonstrate it. However, in children, in these cases of sudden death, we find a very large thymus, sometimes 70 or 80 to 100 gmns., also large spleen and at times glandular enlargements. What this has to do with it we do not know, but at any rate we do know that these children may develop some severe infection, be extremely sick, then recover and become apparently well, only to have some little thing happen several weeks or months later, a sudden cold develop perhaps, and death ensue. Nearly all the beautiful children of the angelic type, with beautiful bodies and tissues, transparency and fineness of features that make them so ideal for painting, show large thymic shadows, and each child of this type is a potential case. The case where there are no symptoms is the difficult one to handle, as sudden death frequently ensues. Where there are symptoms and we know with what we have to deal, under x-ray treatment with ordinary supervision, they respond beautifully. I have become very interested in this subject because I have seen several children of this type die and think the surgeons, especially the nose and throat men, should be particularly careful with them as they are the ones who seemingly die without any hesitation and without any signs of infection. I do not know what the thymus has to do with these cases, but it seems to be about the only trademark we have by which to identify them.

DR. J. W. CATHCART stated that since January, 1930, they have treated 21 cases of this type. They are seen only two or three times and as far as is known, they uniformly heal as the mothers do not return complaining of the cyanosis and breath-holding. When they first come in, they are extremely worried about the child, so when they do not return it is safe to assume that their fears have vanished. This seems to be one thing that yields very easily and readily to x-ray treatment. The technic, however, is hard to demonstrate.

DR. BRANCH CRAIGE: I have been very much interested in thymus myself, but do not believe this train of symptoms has anything to do with this thymus. I recall that a very thorough study of this subject has been made by Dr. Boyd, of the University of Minnesota. She was invited to come to Washington to discuss the thymus. She started work in pediatrics and became interested in thymus cases, had x-rays made on hundreds of children, both normal and unhealthy children, and found that those children with a large thymus, were large, well-nourished and healthy, while the undernourished and sick child had a thymus probably one-third the size of the child who was well-nourished and healthy. The difference in the size of the thymus is greater than in any other organ of the body, sometimes varying as much as 40%, while other organs average 15%. In view of all her experiments Dr. Boyd came to the conclusion that symptoms of status lymphaticus had nothing to do with the large thymus and that there is no relationship between the two.

Further interesting discussion was contributed and participated in by Drs. J. Mott Rawlings, J. Leighton Green, C. F. Rennick, George Turner, W. W. Waite, F. O. Barrett, Branch Craige, G. Werley and Dr. Leigh.

DR. R. B. HOMAN reported a case of carcinoma of the lung, stating that early in the disease it was a little difficult to make a diagnosis—to differentiate between tuberculosis and a tumor. A very complete series of x-ray pictures was taken, however, which in the end proved conclusively the correctness of the diagnosis. Male, 48 years of age, family history irrelevant. Personal history: At age of ten had an illness diagnosed as typhoid fever and recovered from that with the exception that he had bronchitis and a cough which remained with him as long as he lived; otherwise, apparently in good health until in the summer of 1930. About July, he noticed his cough was becoming more intensive, giving him quite a bit of trouble and this increased until in September he presented himself to one of the clinics in central Texas for diagnosis and advice. Routine examination revealed nothing except a generalized bronchitis. X-rays taken then showed nothing, but rather a thickened hilus on each side. He was advised to take an autogenous vaccine for his bronchitis, and to have his tonsils (which were somewhat enlarged), removed, which he did not do.

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He returned to his home but did not improve and went back again in November to the same clinic, when additional examinations were made with practically negative results. Sputum examined at this time was negative for tuberculosis. Early in December he returned again, and x-ray pictures then showed he had developed indications of tuberculosis. No trace of the organism could be found, however, but nevertheless he was advised to go to an institution, so he came to El Paso and to us. The condition progressed rapidly and he died in June. Autopsy made by Dr. Waite revealed the presence of tumors which had originated in the bronchus and spread out into the lung tissue.

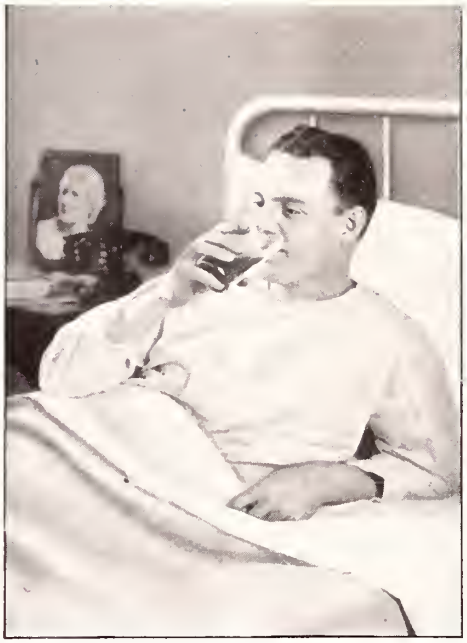
DR. ORVILLE EGBERT: I had a case which came to autopsy the day following that of Dr. Homan's. This was a man, 58 years of age, who came to us from New Orleans, carrying a diagnosis of tuberculosis, because of a severe cough, but he was clinically a picture of decompensation, with marked dyspnea, and his ankles were as large as thighs. Heart sounds were faint, in fact nearly all normal sounds of the chest were obliterated. Autopsy in this case was also made by Dr. Waite.

DR. W. W. WAITE: These were both very interesting cases and the thing that interested me most without going into details, were the tumors, primarily of the epithelium of the bronchus. Dr. Homan's case was of the squamous cell type, and was a much slower growing case than that of Dr. Egbert's, which was much more virulent, with considerable pain going way up in the neck. Dr. Homan did well to have so many x-rays taken, because there is probably not one x-ray which, taken by itself, would be sufficient for a person to venture a diagnosis, but when you see the series, they show very plainly.

DR. E. G. EARNHEART: I saw Dr. Homan's patient the first time he came to the sanatorium and surely commend Dr. Homan for his diagnosis in this case. He had been there only a short time when Dr. Homan made an almost positive diagnosis of malignancy. One thing very characteristic about the symptomatology was the constant and persistent dyspnea that he had throughout and the nonproductive distressing cough. Many times driving to the sanatorium, before I could get inside the yard, I would hear the man's cough, which was the most distressing of any patient we had in the sanatorium.

DR. J. W. CATHCART: In regard to Dr. Homan's case, I saw the pictures early in the game, but was not sure what the condition was. It looked like active tuberculosis and there was nothing characteristic of malignancy so far as I could see. On the other hand, Dr. Egbert's case was a clear cut one.

DR. W. A. GUYNES presented a paper on Chorea Gravidarum, including a case report, in which he termed acute chorea as an acute infectious disease, characterized by involuntary coarse muscular twitching, psychical changes and a propensity to endocarditis and polyarthritis. The exciting cause is thought to be a non-hemolytic streptococcus, which produces toxin and by its action on the brain and basal ganglia produces the symptoms characteristic of the disease. The disease is more frequent in children, being rare in adults except during pregnancy, which predisposes to it, and favors a relapse in women who have had the disease previously. The pathology is a low grade meningoencephalitis, which is thought to be so localized in the basal ganglion that it produces the specific movements. There is also congestion and hyperemia of the brain and meninges. Emboli are frequently found in the brain and probably originate from the endocarditis, but these emboli are not the cause of



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the specific movements. The cardinal symptoms are choreic movements, which are spontaneous, irregular, involuntary jerks and twitches of various parts of the body, various psychic changes, ataxia, and weakness, the patient being unable to maintain a tonic muscular contraction. The disease must be differentiated from hysteria, tic or habit spasm, epidemic encephalitis, senile chorea, Huntington's chorea, Friedreich's ataxia and various intoxications.

DR. WAITE: It is difficult to imagine how we could get such violent symptoms with so little pathological change. If some of these cases could be studied by the most advanced technic for studying brain tissue, we might be able to find more than we do now. Here again we must get down to the fact that the heart is the organ that is probably the first involved. We see a good many hearts in a condition that might have been due to a rheumatic infection. When you get a case of acute rheumatism and the doctor says the heart is not yet involved, I think the thing to do is to assume the heart is already involved and work on that basis rather than to say as yet there is no heart involvement.

DR. G. WERLEY: I think that Dr. Waite's contention that rheumatism is primarily a heart disease can be narrowed down to where it is primarily a vascular disease. I believe that Dr. Waite will agree that the lesions are really connected with the vascular blood supply to the heart. Joint manifestations of rheumatism are vascular and due to the irritation of the vascular supply about the joint and that is what causes the effusion into the joint. Rheumatism is a general disease.

DR. S. H. NEWMAN: Somewhere I have read that 90 per cent of all cases of chorea that have temperature over 100 show heart involvement. For that reason we went over the heart very carefully in the case reported by Dr. Guynes, but were unable to find any murmur. Autopsy proved, however, that the mitral valve was involved.

DR. J. L. MURPHY presented two case reports.

Case 1, male, 49, injured three years before he came to Dr. Egbert, on Jan. 17, 1928, when thrown on the brake wheel on a box-car, injuring abdomen. Had two profuse hemorrhages from the bowels, losing approximately three quarts of blood at the time. In April, 1928, tumor mass developed in upper abdomen, continuing to increase in size. In Feb. ruary, 1929, exploratory operation was done in Topeka, Kans., hospital, and two gallons of fluid removed, tuberculous in origin, confirmed by microscopic examination. In October, 1929, he returned to the Topeka Hospital and was injected with three pints of oxygen, which gave him much discomfort, but he has been doing nicely since then, though unable to work. The patient then came to us with the idea of an exploratory operation which was done and at the time of operation the entire peritoneum was studded with clear tubercles, some of them of grape formation, and a big tumor mass in the epigastrium; stomach could not be made out as a separate organ. It was just a complete mass, with another mass extending down the left side into the pelvis, which could not be moved. At the time of operation we thought it was tuberculous, generalized from the peritoneum. Considerable fluid was removed at the time the abdomen was opened; section was taken which Dr. Waite reported as mucoid carcinoma.

Case 2, female. Noticed tumor in upper right quadrant, freely movable, not tender. Loss of appetite practically only symptom, but became quite weak and unable to work, so came to the office for examination. Dr. W. L. Brown felt that tumor had nothing to do with the general condition. Stool

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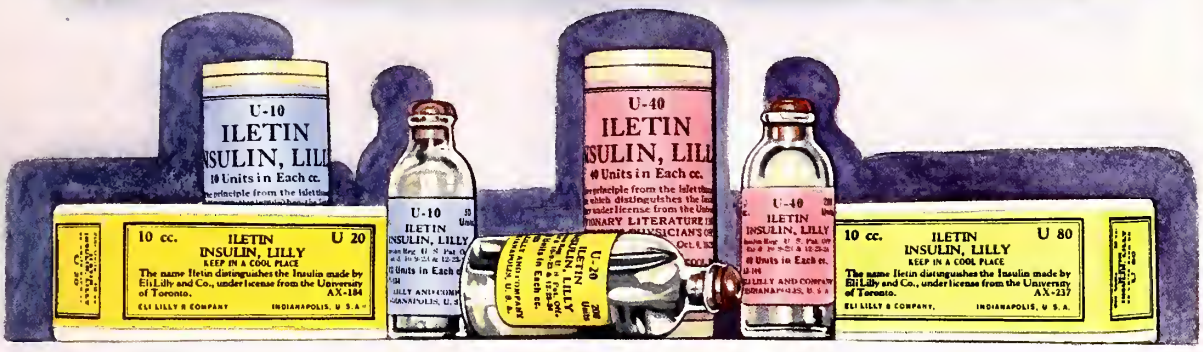
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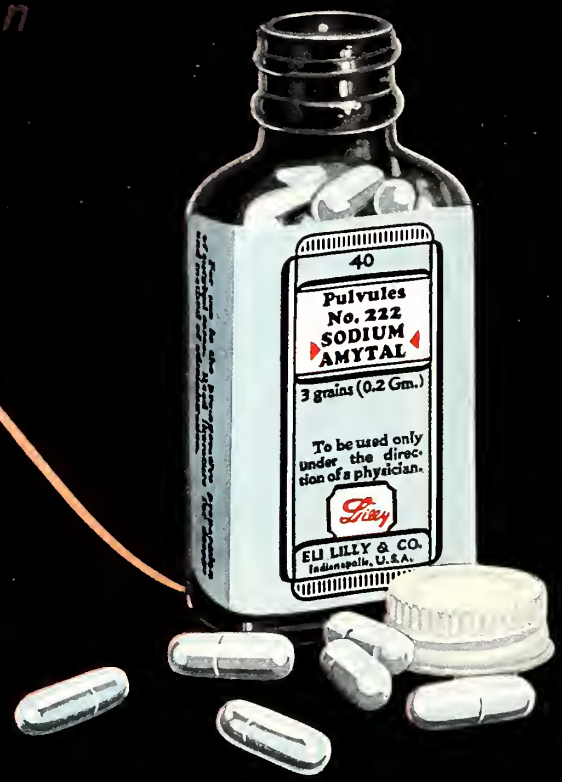

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examination showed no blood, no mucus or pus, hemoglobin was gradually decreasing, had gone down from 70 to 60 to 55. Patient was advised to take a rest in California, which she did, and while there developed a terrific pain and enlargement in abdomen, but stated after two or three days without any specific treatment, she recovered. When she came back here the tumor had grown in size and was freely movable, but apparently causing no trouble. Unfortunately we did not make a barium enema examination, so were at a loss as to the origin of the tumor. Exploratory operation, on opening abdomen showed carcinoma of the transverse colon. Patient has now recovered from the effects of operation and has left the hospital.

DR. ORVILLE EGBERT: The first case reported by Dr. Murphy is that of a Santa Fe railroad man. When the belly was opened here, I took one look and thought it tuberculous peritonitis, and so did Dr. Brown. Dr. Murphy said it did not look just right to him, and it was not right. Here was a man 44 years old, who never had tuberculosis before. Developing tuberculosis at 44 or 45 is very rare, and then, that the tuberculosis should primarily be in the intestinal tract, would make it doubly rare. Usually tuberculosis of the abdomen is secondary to pulmonary tuberculosis.

DR. F. D. GARRETT: These cases are very interesting, especially the first one. I remember some years ago I was called to see a man, who had always been very well and strong up to a few months before. He commenced losing weight, developed pain in the abdomen and his condition was rather bad when I saw him. He insisted on being up and about when he should have been in bed. We were not able to make out any distinct mass in the abdomen, but I secured a small specimen from the stomach, which showed some blood microscopically. I wrote back to the doctor it was probably carcinoma and asked him to bring the man down for further observation. I heard nothing further about the case, but sometime later I happened to be in the hospital one day and saw the patient there. An incision had been made in his abdomen and it was covered with what appeared at first sight to be tubercles, but knowing the history I suggested carcinoma. It turned out that way and the man died in about two weeks.

DR. J. W. CATHCART: The man referred to by Dr. Murphy comes around every little while and has an x-ray taken. He was in two weeks ago and disappeared after we took a picture. He does not seem to be changing very fast; there is plenty of tumor there.

DR. W. W. WAITE: These are very interesting cases. We had a case several years ago, but he had no x-ray treatment. We watched him until he died and then did a postmortem. It was nearly all tumor and had not metastasized anywhere, just filled the entire abdomen; all the creases and little places were filled with tumor growth. We have had a lot of this to examine for diagnosis. Where these tumors originate, I do not know, but imagine it is somewhere around the stomach. The other type of case originates in the large intestine, with not much connective tissue around it and is probably a low grade malignancy, but the type of tumor called mucoid carcinoma. The cells stain better in this type than they do in the other.

EL PASO COUNTY MEDICAL SOCIETY

Meeting October 26, 1931

The meeting was held in the Crystal Ball Room of Hotel Hussman and was called to order by the President, Dr. J. W. Laws, at 8 p. m. There were

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present 43 regular members, 8 from Fort Bliss, and 5 visitors.

Minutes of the previous meeting were read by the Secretary, Dr. Ralph Homan, and approved.

Dr. Homan read a communication from Dr. R. L. Powers, Secretary of the Lubbock, Texas, County Medical Society, relative to the transfer of Dr. H. F. Miller, of Clayton, Texas, from that Society to the El Paso County Medical Society. Motion was made, seconded and carried that Dr. Miller be accepted as a member by transfer.

DR. W. E. VANDEVERE presented a case report—Mexican girl, 7 mos. old, who had experienced difficulty in swallowing food, had strangling spells, would get choked and could not sleep. X-ray showed a safety pin in uppuer end of esophagus, with point turned up. Dr. Vandevere displayed x-ray pictures showing various positions of the pin and explained the procedure used in extracting same.

DR. E. W. RHEINHEIMER presented a paper on Hypertension—Etiology and Prognostic Tests—in which he brought forth that anything that tends to decrease the lumen of the vascular bed, or to interfere with its elasticity, or to increase the peripheral resistance, usually raises the tension within that bed, and that the peripheral resistance of the arterioles of the general circulation measured quantitatively was twice as high in a group with hypertension as in a normal control group. The change in lumen may be more or less restricted to a certain organ or area, as in the case of the renal type of hypertension; it may involve practically the entire vascular tube as in a general arteriosclerosis, both of which cause varying degrees of elevated pressure ordinarily. In the senile type, however, usually involving the larger vessels, the blood pressure may be within normal limits; it may also be of that obscure type, probably the most common and least understood—essential or benign hypertension or hyperpiesia, in contradistinction to the arteriosclerotic type. A fourth type sometimes mentioned is the accidental, associated with some types of heart lesions. Definite causation of hypertension has not yet been determined. In the renal sclerotic type, definite pathological changes are found in the renal vessels and the elevated pressure is probably compensatory to force the blood through the narrowed vessels. The same is true to a lesser degree of the general arteriosclerotic type, especially when there is considerable involvement of the smaller vessels. In the essential type no definite demonstrable changes are found in the blood vessels, but there is evidence that it is dependent upon a vasoconstriction of the arterioles and many agree that if a higher pressure be maintained over a considerable period of time a benign type will in many instances lead to a secondary sclerosis. Some consider essential hypertension not as a separate entity, but as a form of renal arteriolitis and therefore a renal hypertension. Various theories as to the causative factors were offered, but the etiology of hypertension is complex, and as yet no single operative factor of these proposed can be made responsible.

Dr. Rheinheimer described an amyl nitrite test, reported by Stieglitz, to determine the degree of relaxability of the arterial walls as an aid to prognosis and as a denominator of the degree of vascular disease. "Spasticity and hypertonicity, early phenomena of the progressive disease are amenable to treatment and cases encountered in this stage offer a relatively good prognosis, while if sclerosis is present the change is permanent, not so amenable to treatment and with a less hopeful prognosis. To apply this test the individual's pressure is deter-

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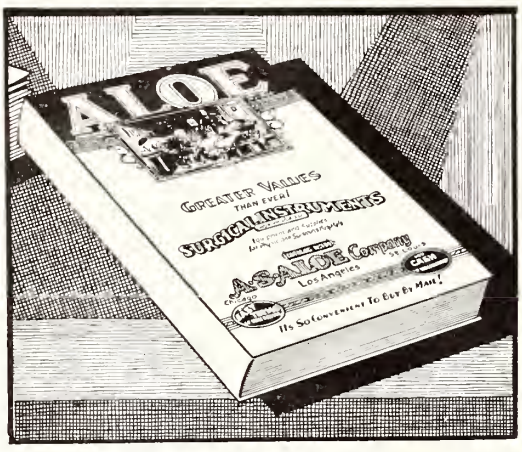

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mined as accurately as possible after which the contents of one pearl of amyl nitrite are inhaled deeply three or four times. When the maximum effect is reached, manifested by flushing of the face, a sense of fullness in the head or vertigo, the blood pressure is rapidly determined two or three times, after which the disagreeable effect can be lessened by the use of aromatic spirits of ammonia. The fall of the systolic is noted, but of more importance is the degree with which the diastolic approaches the normal. This percentage of the approach of the diastolic to the normal measures the degree of resistance or indirectly the degree of sclerosis." Dr. Rheinreimer to determine the effectiveness of this test during the past seven months applied it to 27 cases of hypertension of various classes, indicating the results on an accompanying chart. From these he concludes that the Stieglitz amyl nitrite test seems a fairly reliable method for quickly determining the relaxability of the vascular walls and thereby giving indirectly an estimation of the presence or absence of sclerosis and the degree if present.

DR. E. A. DUNCAN followed wtih an excellent discourse on the same subject, illustrating with lantern slides, various phases occurring in treatment.

Discussion of the papers followed, participated in by:

DR. G. WERLEY, mentioning successes claimed in reducing high blood pressure by use of epsom salts, salt-free diet and other methods;

DR. PAUL GALLAGHER, difficulty encountered in reducing those who are overweight. He thought a vegetable diet best, as one gets a reduction of 1½ to 2¼ lbs. per week therefrom, the fat falls off, and the patient will continue to come in for abservation.

DR. C. R. BAKER asked if one's normal blood pressure is that pressure at which the individual human machine runs along most smoothly;

DR. J. MOTT RAWLINGS understands that persons with high blood pressure or hypertension have associated with it constipation of rather a specific type, and are sometimes greatly relieved by the use of belladonna in small doses;

DR. ROBERT THOMPSON asked what success has been had with the alkaline-ash diet;

DR. N. H. KELLER believes hypertension should be divided into three classifications: (1) renal involvement, (2) arterial sclerotic type, (2) essential hypertension. A good test is to take the blood pressure and then put the patient to bed for three days, taking the pressure at the patient's home each day;

DR. G. WERLEY, perhaps a high protein diet has something to do with high blood pressure, and should therefore be cut down. In all experiments carried on in animals in connection with producing arterial sclerosis, even in a short-lived animal like the rabbit, it takes from one to two years to produce results, so to make proper tests on a human being, it would probably require from 20 to 30 years to note the true effect. Reducing blood pressure does no harm, though many theories have been brought forth that a certain amount of pressure is necessary to the well-being of certain individuals. It is important to run a control on these cases, if this be possible. In a few cases he has been able to follow over a period of three or four years, he has found a great variation in pressure.

Closing discussion, DR. RHEINHEIMER referred to the essential type, wherein if the condition continues, a general sclerosis results, with hypertonicity, muscular weakness and muscular degeneration. He does not know if the test he discussed has any value or not, as sufficient length of time has not

THE ROBINSON CLINIC

Brain tumors are more prevalent than the profession realizes. Routine autopsies performed on all patients who die in the City Hospital in Vienna showed that one out of four thousand cases had some type of cranial neoplasm. In other words, in every community of ten thousand people, there are at least two people suffering from a brain tumor.

With this fact in mind, every effort should be made to diagnose and localize these tumors before it is too late, always remembering that few cases are typical until after the optimum operative period has passed.

The classical triad of headache, vomiting and choked disc is seldom found in entirety The presence of one of these conditions with gradually progressing neuro-logical symptoms, is sufficient to warrant the diagnosis of potential tumor, and every step should be taken to determine the presence and location of a tumor mass.

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Drug and Alcohol Addiction

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Internist

elapsed to tell in his series of cases, but several have responded in such a manner that he thinks well of it.

DR. DUNCAN referred to the difficulty in regulating the diet, especially a salt-free diet, which is practically impossible unless the patient is in an institution. Our late Dr. Stark used the alkaline-ash diet and was very enthusiastic over it. He knew nothing about the use of belladonna, brought up by Dr. Rawlings. As to putting the patient to bed, this is quite difficult to do even if they are ill, and extremely difficult when not sick. Most of these patients are not sick in a strict sense of the word, they are active and want action, and usually insist upon being up and around.

DR. F. D. GARRETT presented a paper entitled Anaphylaxis—An Important Cause of Abdominal Pain and Digestive Disturbance.

Discussion was participated in by DR. W. L. BROWN, who told of his interest in the gallbladder cases reported by Dr. Garrett, one of which was a typical neurotic case. Dr. Garrett worked over it sometime and finally removed the gallbladder, which succeeded in quieting the patient for several months. Then she began to have the same symptoms and after about a year went to the Mayo Clinic where they were unable to find any explanation for the attacks of pain. Dr. Judd was interested in the case and while there she had a hemorrhage from the bowels. The second case was on the same order, with neurotic symptoms. There was something about it that made me a bit fearful and I returned her the first time after she had been referred to me for operation. She came back a few months later and I operated on her. She had no gallstones and no evidence I could see of a diseased gallbladder. These were both outstanding neurotic cases.

DR. ORVILLE EGBERT: Dr. Gibson has run quite a number of food tests in just the type of cases that Dr. Garrett has described and it has been rather striking that in the institution cases that might be diagnosed as tuberculous enteritis have been quite frequently relieved by food control, restricting those articles of diet to which the patients were sensitive. The more you see of tuberculosis, the more you feel that allergy plays a most important part in the disease.

DR. J. J. GORMAN: Dr. Garrett has brought attention to a class of cases that are very frequently unnecessarily operated. I think we are all perhaps guilty of referring cases to the surgeon who later may come back with the same symptoms. It is doubtless valuable to resort to food tests in this type of case in order to gain further information; however, negative food tests do not prove all foods to be innocent, and those which are guilty but do not show by the tests may be eliminated by test diets. Presence of bacterial infections should be properly studied.

DR. G. WERLEY: A great deal of work has been done in connection with headaches lately to show that headaches are due to allergic spasms of the vessels in the brain.

DR. N. H. KELLER: : You will find occasionally in certain susceptible persons, suffering with indefinite abdominal pains, intestinal thyroid. Under x-ray radiation a good deal of these intestinal symptoms disappear.

DR. GARRETT (closing): I have never been very enthusiastic about food tests and feel that the man doing that kind of work should have his patients under very close observation to get anywhere with it, while the man who does it occasionally and is not able to follow his patients very closely, must have a great deal of difficulty in determining his results. Pain without symptoms is very frequently noted. Many of these cases for years will have abdominal pain and not have irritation or eruption, but some day this will appear and make the diagnosis clear.

Dallas Southern Clinical Society News

Throughout the past several months, the various branches of the Program Committee have been diligently working on the plans and details of the program for the Fourth Annual Spring Conference of the Dallas Southern Clinical Society which meets in Dallas, March 28th to April 2nd, 1932, inclusive. A most elaborate program has been planned. Twenty distinguished guest speakers, men of outstanding ability as teachers throughout the United States, have already accepted our invitation to appear in general assemblies, hospital clinics, and the popular round table luncheons. Every field of medicine is thoroughly and adequately covered, and covered in such a coordinated way that the doctor who attends will be able to arrange a course of post-graduate study far superior to any that he could obtain by making trips all over the country. The evening entertainment throughout the Clinical Conference offers many outstanding features. On Monday evening, Dr. Edward H. Cary, President of the American Medical Association, will make the Welcome Address before a general assembly which will be open to the public. Dr. Thos. R. Brown, Professor of Gastro-enterology at Johns Hopkins University, will speak on "The Story of Digestion—Indigestion." Dr. Frank L. Lahey, of Boston, will talk on "The Thyroid Gland." Dr. Joe. Collins, of New York, will talk on "How Can We Stem the Rising Tide of Insanity in This Country?"

On Tuesday evening there will be a symposium on "Diseases of the Biliary Tract" by Dr. Thos. McCrae, of Philadelphia, Dr. J. Shelton Horsley, Sr., of Richmond, Va., and Dr. Merrill C. Sosman, of Boston. On Wednesday evening a brilliant clinic dinner will be held, and many special features of entertainment are being arranged.

On Thursday evening two symposia will be held, one on "Arthritis," featuring Dr. John A. Kolmer, of Philadelphia, and one on "Conservation of Maternal Health," featuring Dr. Edward H. Richardson, of Baltimore.

The Clinical Society is continuing its ninety-six full one-hour periods of post-graduate work, and is arranging this part of the program in such a manner as to prevent, as near as possible, conflicts between medical and surgical topics.

The popular Round Table Luncheons are to be held on five days, and are to meet in the following groups: Medicine, Surgery, Pediatrics, Eye, Ear, Nose and Throat, Urology and Orthopedics.

Another special feature has been added this year in the form of Hospital Ward Rounds and Surgical Operative Clinics. These features will be conducted by local members of the Dallas Southern Clinical Society on Friday afternoon and Saturday morning.

The "Prospectus" will be ready for mailing about January 1st, and the complete program will be mailed to all the doctors of the Southwest about March 1st, 1932. Truly the Dallas Southern Clinical Society is offering the most elaborate program of post-graduate study that has ever been made available to the doctors of the Southwest. The registration fee, which covers everything, remains at the usual price of $10.00. A number of registrations have already been received, and the various committees are confident of an attendance of at least two thousand next spring.

A cordial invitation is extended to every doctor, and a hearty welcome is awaiting you. "Don't Miss This Conference."

WOMEN'S AUXILIARY

(El Paso County Medical Society)

The first meeting of the incoming year was held with the President, Mrs. Gallagher, on October 13. A good attendance and much interesting activity was in evidence, as the Auxiliary had some of its chairmen working during the summer months.

Mrs. J. A. Rawlings reported having been faithful to her duties and had enjoyed satisfactory results from the city to help with weed eradication, of which committee she is chairman. She had also written an article along these lines for Southwestern Medicine and had talked over the radio, urging cooperation from El Paso's citizenship at large.

Plans were made for the year's work; one of the first and most important duties coming to the membership, was to pledge themselves to work in the Community Chest drive. Their aid to the Clinic for glasses for school children, the work of the President on the City and County Hospital Board, the report of the Hygeia and Child Welfare Committee, and various other worthy causes in which these women work, were discussed.

Dr. J. W. Laws, President of the County Medical Society, talked to the organization on the "Interrelated Activities of the County Medical Society and the Women's Auxiliary."

During the summer months the Auxiliary had been invited to Mrs. M. P. Schuster's summer home in the mountains of Cloudcroft, New Mexico, and those whose good fortune it was to be present, reported a most happy and congenial day. Just such courtesies as this has helped put our membership upon a most cordial basis and the activities of many of our new daughters and daughters-in-law who have recently come into the profession through Cupid's ever attentive guidance, also helps us to keep in step with their youthful ideas of doing things.

The organization will meet in the homes of the various members during the year, thereby giving us a more congenial and personal atmosphere to work in. The next meeting will be in the Red Cross Hostess House at William Beaumont Hospital, with the wives of Fort Bliss and William Beaumont as hostesses.

BOOK REVIEWS

HEART DISEASE, by Paul Dudley White, M. D.; Instructor in Medicine, Harvard Medical School; Physician, Massachusetts General Hospital, Boston; MacMillan Company, New York, 1931; $12.00.

Dr. White has certainly achieved his purpose in writing a book on heart disease which will be of "much service to students and practitioners of medicine and which should stimulate investigation into obscure problems of cardiac troubles."

The book is divided into four parts. The first part has to do with examination and symptoms and signs of cardiovascular diseases. The second part deals with the incidences, causes, and types of heart disease. The third part treats of structural cardiovascular abnormalities. Part four discusses the disorders of cardiovascular function.

The author goes into detail in obtaining the patient's history and all the physical and instrumental examinations. The discussion of electrocardiographic methods is especially clear and understandable and should be of great help to any physician who wishes to gain an understanding of this important method of investigating heart disease.

He has drawn fully upon his rich experience for the past 20 and more years in the discussion of the

An Invitation To the Doctors of the South

THE DALLAS SOUTHERN CLINICAL SOCIETY

Will hold its Fourth Annual Spring Clinical Conference in Dallas
March 28, 29, 30, 31, April 1, 2, 1932

Featuring:

20 Distinguished Guest Speakers in General Assemblies, Hospital Clinics, and Round Table Luncheons.

Elaborate Evening Entertainments:

Monday:—
Welcome Address—Dr. Edw. H. Cary, Dallas, President, American Medical Association.
"The Story of Digestion—Indigestion," Dr. Thos. R. Brown, Baltimore.
"The Thyroid Gland"—Dr. Frank L. Lahey, Boston.
"How Can We Stem the Rising Tide of Insanity in This Country?" Dr. Joseph Collins, New York.

Tuesday:—
Symposium — "Diseases of the Biliary Tract."
Dr. Thos. McCrae, Philadelphia (Internist).
Dr. J. Shelton Horsley, Sr., Richmond, Va. (Surgeon).
Dr. Merrill C. Sosman, Boston (Radiologist).

Wednesday:—
Brilliant Clinic Dinner—Special Entertainment Features.

Thursday:—
Two Symposia.
"Arthritis"—Featuring Dr. John A. Kolmer, Philadelphia.
"Conservation of Maternal Health"—Featuring Dr. Edw. H. Richardson, Baltimore.

96 full one-hour periods of Post-Graduate instruction arranged in coordinated courses.

All inclusive registration fee—$10.00. For detailed information, address Dr. M. O. Rouse, Secretary, 1424 Medical Arts Bldg., Dallas, Texas.

types of heart disease and their incidence and cause. The work shows that he is fully familiar with the extensive literature on the subject.

The appendix contains an extensive bibliography of nearly 200 pages giving the names of the authors, the titles of the articles and the journals in which they appeared. The last part of the appendix contains a list of 100 questions which he says are unsolved cardiovascular problems.

The subject index seems to be unusually comprehensive although I had trouble in finding the portions dealing with the size of the heart. The book has 931 pages.

The type is well chosen for easy reading. The author has a happy way of expressing himself clearly and effectively. He uses splendid English throughout. No typographical errors were detected in a careful reading of the work. There is extremely little about the book calling for criticism. He uses occasional adjectives such as "very," "some," etc., which in no way strengthen the statements. He consistently uses the word people when persons would be preferable. The illustrations are clear and well designed and have excellent legends.

Each physician who is at all interested in heart disease should be interested in the book. Practically every student and practitioner of medicine will wish to have this book in his library.

The author and the publishers both deserve congratulations. O. H. B.

AN INTRODUCTION TO GYNECOLOGY, by C. Jeff Miller, M. D., Prof. of Gynecology, Tulane University School of Medicine; Chief of the Department of Gynecology of Touro Infirmary; Senior Visiting Surgeon, Charity Hospital, New Orleans. St. Louis. The C. V. Mosby Company, 1931; $5.00.

The author of this book recognizes that he is adding another to a field in which there are a number of excellent texts. His experience as a teacher has taught him that the excellent texts on gynecology are too elaborate for the beginning student. Therefore his text has been prepared as an introduction, and is written so the beginner can get the most out of it. He seems to have achieved his purpose. The cuts, mostly borrowed from other works, are excellent and well chosen. The printer's are is splendidly exemplified. O. H. B.

THE MEDICAL CLINICS OF NORTH AMERICA. (Issued Serially, one number every other month.) Volume 14, Number 6, and Index Volume. (New York Number—May, 1931). Octavo of 300 pages with 55 illustrations. Per Clinic year, July 1930 to May 1931. Paper, $12.00; Cloth $16.00 net. Philadelphia and London: W. B. Saunders Company, 1931.

There are a number of highly interesting articles in this issue of Medical Clinics.

On page 1415 Dr. Walter James Highman, in discussing eczema has produced an epigram worthy of frequent quotation. It is: "Words too often freeze thought and start cults." What a sermon might be preached on this text in medicine, in religion and in almost any field of endeavor. Were there nothing else in this volume but this epigrammatic sentence it would be worth while.

Other interesting articles are on rheumatism, arthritis, pneumonia, pyuria, measles treated by blood injections, etc. O. H. B.

CLINICAL DIETETICS, A Textbook for Physicians, Students and Dietitians, by Harry Gauss, M. S., M. D., F. A. C. P.; Instructor in Medicine, University of Colorado, School of Medicine; Assisted by E. V. Gauss, B. A., formerly Assistant Dietitian, Presbyterian Hospital, Denver, Colorado; Illustrated; The C. V. Mosby Co., St. Louis; $8.00; 1931.

Dr. Gauss has succeeded in producing a most practical book in a field already covered by a number of excellent volumes.

The reviewer regards this book as one which he will wish to keep handy as a reference book on the subject of diet.

In subsequent revisions the author will probably cut out paragraphs here and there and considerably shorten the work without lessening its practicability. For example he cites a considerable number of case histories which could be given in much less detail without making them less valuable.

His sample diets with his food and caloric values are especially valuable.

His chapter on the body habitus is particularly interesting and timely. We have all known that it is impossible to have a standard weight for all types of individuals. His division of three types of body habitus makes the weight for these types valuable.

The historical chapter is of especial interest and should be read by every physician.

Physicians generally will find this a practical volume to have for ready reference. O. H. B.

SHOULD COD LIVER OIL BE FLAVORED?

It is a well-known fact that young infants shy at aromatics. Older patients often tire of flavored medications to the point where the flavoring itself becomes repellant. This is particularly true if the flovaring is of a volatile nature of "repeats" hours after being ingested. Physicians have frequently used the terms "fresh," "natural," "sweet," and "nutlike" in commenting upon the fine flavor of Mead's Standardized Cod Liver Oil. They find that most patients prefer an unflavored oil when it is as pure as Mead's.

Physicians who look with disfavor upon self-medication by laymen are interested to know that Mead's is one Standardized Cod Liver Oil that is not advertised to the public and that carries no dosage directions on carton, bottle or circular. Mead Johnson & Company, Evansville, Indiana, U. S. A., Pioneers in Vitamin Research, will be glad to send samples and literature to physicians only.

SITUATIONS WANTED

WANTED—Salaried appointments for Class A Physicians in all branches of the Medical Profession. Let us put you in touch with the best man for your opening. Our nation-wide connections enable us to give superior service. Aznoes National Physicians' Exchange, 30 North Michigan, Chicago. Established 1896. Member The Chicago Association of Commerce.

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TRAINED NURSE-STENOGRAPHER desires position in physicians office, clinic or hospital historian.

Box B, Care of Southwestern Medicine.

THE BOY WHO FOUND RAINBOWS IN COAL-TAR

ONE Easter vacation in 1856, 17-year-old William Henry Perkin, a student-assistant in the Royal College of Chemistry, was toiling in an improvised laboratory under the eaves of his English home.

"Throw the rubbish away!" croaked unimaginative Common Sense, when the boy poured in a red fluid and got a dirty, sticky, dark mass at the bottom of his test tube. "Examine it!" whispered Science. "It may be worth something!"

Science was right. Out of that ugly dark mud came a lovely violet-purple dye. This "Mauve" was the first aniline dye ever made from coal-tar.

But young Perkin did more than found an industry. His experiments, and the experiments of other men in those early days, showed the way to a new, *creative* chemistry.

Men began to *build* with atoms.

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PARKE-DAVIS research chemists often spend years in producing a single synthetic chemical compound. For example, in a recent search for a synthetic drug to accomplish a certain purpose, hundreds of compounds were patiently built up. Each in turn was put to the severest tests. Finally *one* was obtained that met our exacting requirements.

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